

(19)日本国特許庁 (JP)

(12) 公開特許公報 (A)

(11)特許出願公開番号

特開平9-131288

(43)公開日 平成9年(1997)5月20日

(51)Int.Cl.<sup>6</sup>  
A 47 L 13/16

識別記号

庁内整理番号

F I  
A 47 L 13/16

技術表示箇所  
A  
C

B 32 B 3/30  
5/02  
27/00

B 32 B 3/30  
5/02  
27/00

A  
K

審査請求 未請求 請求項の数 9 OL (全 12 頁) 最終頁に続く

(21)出願番号 特願平8-66802  
(22)出願日 平成8年(1996)3月22日  
(31)優先権主張番号 特願平7-82965  
(32)優先日 平7(1995)4月7日  
(33)優先権主張国 日本 (JP)  
(31)優先権主張番号 特願平7-231425  
(32)優先日 平7(1995)9月8日  
(33)優先権主張国 日本 (JP)

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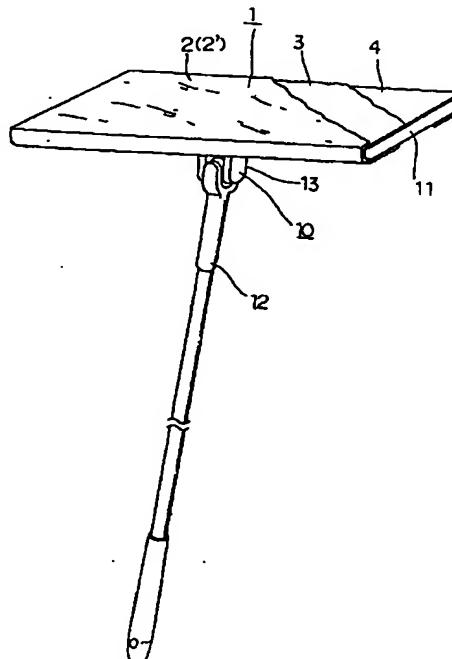
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(54)【発明の名称】 清掃シート

(57)【要約】

【課題】 一般家庭において、床のしみ汚れ等の除去と床の保護・つや出し等のお掃除、お手入れ等の湿式掃除を手軽にできる、モップ状の掃除具に装着して用いる使い捨ての清掃シートを提供すること。

【解決手段】 清掃部1と該清掃部1に連結された棒状の把手12とを具備した掃除具10における、該清掃部1に装着される清掃シート1であって、上記清掃シート1は、液透過性の表面シート2からなる拭取部2' と、該拭取部2' で拭き取った液を吸収する液吸収体3とを具備し、上記表面シート2は、多数の凸部をしており、清掃時において被清掃面に接触する該凸部の面積が表面シート2全体の面積に対して5~60%であることを特徴とする清掃シート1。



## 【特許請求の範囲】

【請求項1】 清掃部と該清掃部に連結された棒状の把手とを具備した掃除具における、該清掃部に装着される清掃シートであって、

上記清掃シートは、液透過性の表面シートからなる拭取部と、該拭取部で拭き取った液を吸収する液吸収体とを具備し、

上記表面シートは、多数の凸部を有しており、清掃時ににおいて被清掃面に接触する該凸部の面積が表面シート全体の面積に対して5～60%であることを特徴とする清掃シート。

【請求項2】 更に、装着シートを具備し、上記液吸収体は、上記拭取部と該装着シートとの間に配されていることを特徴とする請求項1記載の清掃シート。

【請求項3】 上記表面シートは、熱可塑性繊維を5～95重量%の配合割合で含有する、坪量が10～100g/m<sup>2</sup>のシートであり、湿潤時にも維持される高さが0.01～12mmのリブ状若しくはドット状の凸部、又は湿潤時に維持される高さが0.2～10mmの波状形状の凸部を有することを特徴とする請求項1記載の清掃シート。

【請求項4】 上記熱可塑性繊維が、熱可塑性熱収縮繊維、親水化された熱可塑性繊維又は親水化された熱可塑性熱収縮繊維であることを特徴とする請求項4記載の清掃シート。

【請求項5】 上記表面シートが、親水性セルロース系繊維5～95重量%と親水化された熱可塑性繊維95～5重量%との繊維混合物からなり、リブ状若しくはドット状の凸部を有することを特徴とする請求項1記載の清掃シート。

【請求項6】 上記表面シートが、親水性セルロース系繊維10～90重量%と親水化された熱可塑性熱収縮繊維90～10重量%との繊維混合物からなり、波状形状の凸部を有することを特徴とする請求項1記載の清掃シート。

【請求項7】 上記装着シートが、液不透過性のフィルムシート又は該フィルムシートと他のシートとのラミネートシートであり、その坪量が、10～100g/m<sup>2</sup>であることを特徴とする請求項1～7のいずれか1項記載の清掃シート。

【請求項8】 上記液吸収体が、パルプ繊維を主体とした繊維積層体、パルプ繊維を主体とした繊維集合体からなる吸収シート又は該吸収シートを複数枚積層してなる吸収シート積層体からなることを特徴とする請求項1～8のいずれか1項記載の清掃シート。

【請求項9】 上記液吸収体が、繊維状又は粉末状の高分子吸収体を含有することを特徴とする請求項1～9のいずれか1項記載の清掃シート。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は、モップ状の掃除具に装着して用いる取り替え式の清掃シートに関し、床のしみ汚れ等の除去や床の保護・つや出し等の床のお掃除、お手入れに際し、家庭用、業務用に用いられる湿式掃除用の清掃シートに関するものである。

## 【0002】

【従来の技術及び発明が解決しようとする課題】従来、床のしみ汚れ等に対するお掃除は、広い床であっても、絞ったぬれ雑巾を用い、腰をかがめて行われていた。また、床の保護・つや出しも、乾いた雑巾、タオル等にワックス剤を含ませて、上記の床のしみ汚れに対するお掃除と同様に腰をかがめて行われていた。

【0003】一般に、床の土ボコリや綿ボコリ等を除去する乾式掃除の分野では、油剤を繊維に処理した房状モップ又は取り替え式シートタイプのモップが、広い床の掃除を手軽にするために提案されており、実際に家庭用、業務用共に用いられている。一方、上記のような床のしみ汚れ等に対するお掃除と床の保護・つや出し等の床のお掃除、お手入れといった湿式掃除の分野でも、房状モップが提案されている。該房状モップは、房状部分を水に浸した後、ロールで絞って、床の掃除に供されている。

【0004】しかし、該房状モップは、ビルや工場等の業務用の場所においてはよく使われているが、一般家庭ではバケツ、絞りロール等の準備が面倒なこと、木材系の床に対して過剰の水を用いることとなりこの過剰の水が床材を傷める等の問題があり余り用いられていない。また、雑巾、タオル等を装着して使用する平面状の清掃部を有した専用モップが一般家庭用に提案されている。

しかし、雑巾、タオル等を装着して湿式掃除をする場合、摩擦抵抗が大きくなり拭く際の操作性が良くないこと、ワックス剤を床に拭き広げる際に泡立ちやすく仕上がり性に劣ること、ワックス剤を塗った後雑巾等を放置しておくと再使用できなくなること等の問題があった。

【0005】従って、本発明の目的は、一般家庭において、床のしみ汚れ等の除去と床の保護・つや出し等のお掃除、お手入れ等の湿式掃除を手軽にできる、モップ状の掃除具に装着して用いる使い捨ての清掃シートを提供することにある。

## 【0006】

【課題を解決するための手段】本発明者らは、上記の問題を解消すべく、鋭意検討した結果、表面シートと液吸収体と液不透過性シートとを具備する清掃シートが上記目的を達成し得ることを見出した。

【0007】本発明は、上記知見に基づいてなされたもので、清掃部と該清掃部に連結された棒状の把手とを具備した掃除具における、該清掃部に装着される清掃シートであって、上記清掃シートは、液透過性の表面シートからなる拭取部と、該拭取部で拭き取った液を吸収する液吸収体とを具備し、上記表面シートは、多数の凸部を

有しており、清掃時において被清掃面に接触する該凸部の面積が表面シート全体の面積に対して5~60%であることを特徴とする清掃シートを提供するものである。

【0008】

【発明の実施の形態】以下、本発明の清掃シートを添付図面を参照して更に詳細に説明すると共に試験例により具体的に説明するが、本発明はこれらに限定されるものではない。図1は、本発明の清掃シートを掃除具に装着した状態を示す一部破断斜視図であり、図2は、図1に示す本発明の清掃シートの斜視図である。図3(a)は、本発明の清掃シートに用いられる表面シートの1例を示す平面図であり、図3(b)は、図3(a)に示す表面シートのB-B断面図である。また、図4(a)は、本発明の清掃シートに用いられる表面シートの他の例を示す平面図であり、図4(b)は、図4(a)に示す表面シートのB-B断面図である。また、図5は、表面シートの清掃時における接触面積の測定方法を示す斜視図である。また、図6は、実施例1(実施例3、実施例4)の本発明の清掃シートを示す断面図(図2に示す清掃シートのI-I'断面図であって、その一部を省略して示す断面図)であり、図7は、実施例2の本発明の清掃シートを示す断面図(図6相当図)であり、図8は、実施例5の本発明の清掃シートを示す断面図(図6相当図)である。

【0009】本発明の清掃シート1は、図1に示すように、平面状の清掃部11と該清掃部11の上面に連結された棒状の把手12とを具備した清掃具10の下面に装着され、スプレー式の洗浄剤、保護・つや出し剤を床に直接スプレーしてから又は清掃シートに洗浄剤、保護・つや出し剤をスプレーしてから、被清掃面を拭くという形で使用される。上記掃除具10について更に説明すると、上記把手12は、上記清掃部11の上面の略中央部の連結部13により、回動自在に連結されている。また、上記清掃部11の左右両側部には、シートを装着する際にシートを嵌め込むシート装着手段が設けられている(図示せず)。そして、上記清掃部11の下面表面と上記装着シート4とを当接させるようにして、上記清掃シート1が上記掃除具10に装着されている。上記掃除具10は、このように構成されているので、種々形状の清掃面をシートの取付状態を安定に維持しつつ、効率的に清掃することができる。

【0010】而して、本発明の清掃シート1は、液透過性の表面シート2からなる拭取部2'、該拭取部2'で拭き取った液を吸収する液吸収体3とを具備してなる。更に詳述すると、上記清掃シート1は、更に、上記清掃部に当接される装着シート4を具備し、上記液吸収体3は、上記拭取部2'、該装着シート4との間に配されている。上記装着シート4は、幅広の長方形形状に形成されており、上記液吸収体3は、該装着シート4の幅方向略中央部に載置されており、上記表面シート2は、該

液吸収体3を覆うようにして該装着シート4上に配され、その側縁部2aをヒートシールして固定されている。また、該表面シート2の幅は、清掃部11の幅と略一致するようになされている。

【0011】そして、上記表面シート2は、多数の凸部(図3、4参照)を有しており、清掃時において、被清掃面に接触する該凸部の面積が表面シート2全体の面積に対して5~60%、好ましくは10~30%である。上記面積が5%未満であると、すじ状になり仕上がり性が悪くなり、60%を超えると泡が立ちやすくなり、また床を拭くときの重さが重くなる。

【0012】ここで、上記「接触する凸部の面積」とは、清掃時に被清掃面に接触する凸部の面積のシート全体の面積に対する割合であり、下記の測定方法により求められるものである。

【0013】測定方法、：

1) 図5に示すように、清掃部11に表面シート2を装着した後、該表面シート2の表面に、スプレー糊(住友スリーエム株式会社製、商品名「55」)を均一に約0.0006g/cm<sup>2</sup>でスプレーするか、又は該表面シート2の表面に水を約0.016g/cm<sup>2</sup>スプレーする。

2) 平らなプレート20に試験用ダスト7種(関東ローム、細粒、IWAMOTOMINERAL CO.)を均一になるよう散布する。

3) 平らなプレート20上に上記1)のシート2を装着した清掃部11を置き、500gのおもり21を2個のせて、5分間荷重をかけ、測定用のサンプルを得る。

4) 得られたサンプルを画像解析して、プレート20と接した面において試験用ダスト7種で汚れた部分の面積を測定し、該プレート20と接した面の全体の面積におけるダストで汚れた部分の面積の割合を算出しこれを接触する凸部の面積の割合とした。

【0014】次に、図3及び図4を参照して、上記表面シート2について更に詳述する。図3(a)及び(b)に示す形態の上記表面シート2は、その表面に多数のリブ形状の凸部2a、2a'が設けられている。該凸部2a、2a'は、その長手方向の向きがそれぞれ異なる凸部2aと凸部2a'を交互に配して設けられている。

40 そして、該凸部2a、2a'は、図3(a)の矢印D方向に見たときに、図3(b)に示すように凸部が設けられている領域2'において該凸部2a、2a'を投視した際に該領域の全面に該凸部2a、2a'が存在するように(シート2を矢印D方向に見たときに該凸部2a、2a'で閉鎖系となるように)、該凸部2a、2a'が設けられている。このように、上記凸部2a、2a'で閉鎖系とすることにより、清掃時において、被清掃面に満遍なく凸部を当接させることができ、清掃効率を向上させることができる。なお、上記矢印D方向は、清掃具に装着された際に清掃具の幅方向に沿う方向である。ま

た、上記矢印D'方向においても、該凸部2a, 2a'で閉鎖系となるように、該凸部2a, 2a'が設けられているのが好ましい。

【0015】また、図4(a)及び(b)に示す形態の上記表面シート2は、その表面に多数のドット状の凸部2aが設けられている。そして、該凸部2aは、図3(a)の矢印D方向に見たときに、図3(b)に示すように凸部が設けられている領域2'において該凸部2aを投視した際に該領域2'の全面に該凸部2aが存在するように(シート2を矢印D方向に見たときに該凸部2aで閉鎖系となるように)、該凸部2aが設けられている。このように、上記凸部2aで閉鎖系とすることにより、清掃時において、被清掃面に満遍なく該凸部を当接させることができ、清掃効率を向上させることができ。なお、上記矢印D方向は、清掃具に装着された際に清掃具の幅方向に沿う方向である。また、上記矢印D'方向においても、該凸部2aで閉鎖系となるように、該凸部2aが設けられているのが好ましい。

【0016】尚、本発明においては、上記凸部の形状等は、上記図3及び図4に示す形態、即ちリブ状、ドット状の形状等には制限されず、種々の形状、例えば山状、波状又は線状等の形状とすることができます。また、上記凸部のシートの単位面積当たりの密度は、1個/cm<sup>2</sup>以上であるのが好ましく、さらに好ましくは、5~40個/cm<sup>2</sup>である。長さ又は直径1(図3及び図4参照)は、10mm以下が好ましく、さらに好ましくは、0.3mm~10mmである。また、高さhは、0.01mm~12mmが好ましく、さらに好ましくは、0.05mm~8mmである。

【0017】上記表面シート2の形成材料としては、パルプ、コットン等の天然繊維、レーヨン、キュプラ等の再生繊維、ポリエステル系、ポリアミド系、ポリオレフィン系、アクリル系、ビニロン系等の合成繊維及びその混合繊維原料等のシート状の繊維集合体を形成する材料等が挙げられる。更に、上記成形材料としては、後述する親水性繊維及び熱可塑性繊維を後述する配合比で混合してなる繊維混合物を特に好ましく用いることができる。

【0018】また、上記表面シート2は、熱可塑性繊維を好ましくは5~9.5重量%、更に好ましくは10~75重量%の配合割合で含有する繊維混合物からなり、坪量が好ましくは10~100g/m<sup>2</sup>、更に好ましくは20~75g/m<sup>2</sup>であるのが好ましい。そして、この際、上記表面シート2の有する凸部が、リブ状若しくはドット状の凸部である場合には、該凸部の湿润時に維持される高さが、好ましくは0.01~12mm、更に好ましくは0.05~8mm、最も好ましくは1~5mmである。また、上記凸部が、波状形の凸部である場合には、該凸部の湿润時にも維持される高さが好ましくは0.2~10mm、更に好ましくは0.5~7mm、最

も好ましくは0.8~5mmであるのが好ましい。

【0019】上記繊維混合物における上記熱可塑性繊維の配合割合が、5重量%未満であると、表面シート2の上記凸部の湿润時の形状保持が困難となり仕上り性、操作性が不良になる。9.5重量%を超えると、液透過性能が劣り、汚液の吸収性が悪くなつて洗浄性が不良になる。また、上記坪量が10g/m<sup>2</sup>未満であると、上記と同じく上記凸部の湿润時の形状保持が困難になり、さらに清掃作業時の摩擦に耐えうる強度が得られなくなる。100g/m<sup>2</sup>を超えると、液吸収体3への液の移行が悪くなるとともに、使い捨てシートとして必要以上のコストがかかる。上記のリブ状若しくはドット状の凸部の高さが0.01mm未満であるか又は上記波状形の凸部の高さが0.2mm未満であると、清掃シートの摩擦抵抗が大きくなり操作性が不良となつたり、保護・つや出し剤を塗り拡げる際に泡立ちやすく仕上り性が不良となる場合があり、また、上記のリブ状若しくはドット状の凸部の高さが1.2mmを超えるか又は上記波状形の凸部の高さが10mmを超えると、液透過性能が劣り、汚液の吸収性が悪くなつて洗浄性が不良となるので、上記範囲内とするのが好ましい。

【0020】ここで、「湿润時にも維持される」とは、本発明の清掃シートで、液漏れにより汚染された場所を清掃して、該清掃シートが漏れても上記凸部の形状(ドット状、リブ状又は波状等の形状)が維持されることを意味し、具体的には、例えば、該清掃シートが、該清掃シート100重量部に対して100重量部以上の水を吸収した場合においても、上記凸部の形状が維持されていることを意味する。また、上記「リブ状若しくはドット状の凸部の高さ」(図3及び図6に示すh)とは、凸部の頂点と底点との高さの差の平均であり、また、上記「波状形の高さ」(図7に示すM)とは、波状の凸部の頂点と底点との高さの平均である。

【0021】上記熱可塑性繊維としては、特に湿润時にも維持されるリブ状又はドット状の形状を付与する場合には、平均融点160°C以下の熱接着成分を含有する繊維、即ち高温度(例えば100°C以上)の熱処理で繊維表面の一部が溶融し、繊維が該形状固定化に働く繊維が好ましく用いられ、例えば低融点タイプのポリエチレンテレフタレート繊維、ポリエチレン繊維、エチレンビニルアルコール繊維又はポリビニルアルコール繊維等の低融点タイプの繊維を鞘成分とし、高融点タイプの繊維を芯成分とした芯鞘状繊維やサイドバイサイドで片方の成分が上記低融点タイプの繊維であるもの等が挙げられる。一方、湿润時にも維持される波状形を付与する場合には、予め延伸されたポリエチレン系繊維、ポリプロピレン系繊維、ポリエチレンテレフタレート系繊維、およびこれらの繊維を芯成分とした芯鞘繊維あるいはサイドバイサイド型の繊維で片方の成分が加熱による収縮してクリンプ形状に収縮する繊維等の熱可塑性熱収縮繊維

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が挙げられる。また、上記熱可塑性繊維としては、上記の熱可塑性樹脂に親水化剤等を練り混む等して親水化された熱可塑性繊維（以下、「親水性熱可塑性繊維」という）あるいは親水化された熱可塑性熱収縮繊維（以下、「親水性熱可塑性熱収縮繊維」という）を好適に用いることができる。

【0022】また、上記熱可塑性繊維と共に用いられ、シートを形成する繊維としては、親水性のパルプ、コットン、レーヨン繊維等の親水性セルロース系繊維；親水性の合成繊維；親水化処理されたポリエステル系若しくはポリオレフィン系繊維、等の親水性繊維が挙げられる。特に上記親水化処理されたポリエステル系若しくはポリオレフィン系繊維としては、例えば親水化材を繊維中に練り込んだタイプのものが好適に用いられる。

【0023】また、特に上記熱可塑性繊維として上記熱可塑性熱収縮繊維を用いる場合には、繊維混合物中における上記熱可塑性熱収縮繊維の配合割合は、10～90重量%とするのが好ましく、上記熱可塑性繊維として上記親水性熱可塑性繊維を用いる場合には、繊維混合物中における上記親水性熱可塑性繊維の配合割合は、5～95重量%とするのが好ましく、上記熱可塑性繊維として上記親水性熱可塑性熱収縮繊維を用いる場合には、繊維混合物中における上記親水性熱可塑性熱収縮繊維の配合割合は、10～90重量%とするのが好ましい。

【0024】また、上記繊維混合物は、親水性セルロース系繊維5～95重量%と親水性熱可塑性繊維95～5重量%との繊維混合物（以下、「繊維混合物A」という場合には、この繊維混合物を指す）、又は親水性セルロース系繊維10～90重量%と親水性熱可塑性熱収縮繊維90～10重量%との繊維混合物（以下、「繊維混合物B」という場合には、この繊維混合物を指す）が、特に好ましく用いられる。また、上記表面シートの見かけ厚み（凸部の高さも含めた厚み）は、0.5～15mmであるのが好ましい。

【0025】そして、上記繊維混合物から上記のリブ状若しくはドット状の凸部又は上記の波状形状の凸部を有する上記表面シートを製造するには、下記の如くして製造することができる。即ち、上記のリブ状若しくはドット状の凸部を有する表面シートは、上記熱可塑性繊維及び親水性繊維を抄紙してシートを形成し、得られたシートにエンボス加工又は熱エンボス加工を施すか、又は湿式抄紙製法でシートを製造するに、凹凸バターンを有する抄紙ワイヤーを用いて水に濡れた状態でシートに凹凸バターンを刻印すること等により製造することができる。また、上記波状形状の凸部を有する表面シートは、上記熱可塑性熱収縮繊維又は上記親水性熱可塑性熱収縮繊維を含むシートを熱収縮加工又は熱収縮性シートや熱収縮性ネットと非熱収縮性シートを一体化した後に熱収縮加工を行う等することにより製造することができる。

【0026】具体的には、上記熱可塑性繊維として单な

る熱可塑性繊維又は上記親水性熱可塑性繊維を用いた場合には、110～220°Cで、上記エンボス処理を行うことにより、リブ状又はドット状の凸部を有する上記表面シートが得られ、また上記熱可塑性繊維として上記熱可塑性熱収縮繊維又は上記親水性熱可塑性熱収縮繊維を用いた場合には、130～220°C、3～120秒上記表面シートが得られる。従って、上記繊維混合物Aを用いた表面シートは、エンボス処理によりリブ状又はドット状の凸部が形成されたものであるのが好ましく、上記繊維混合物Bを用いた表面シートは、加熱熱収縮処理により波状形状の凸部が形成されたものであるのが好ましい。

【0027】上記表面シートに積層される上記液吸收体としては、パルプ繊維を主体とした繊維積層体、パルプ繊維を主体とした繊維からなる吸収シート又は該吸収シートを複数枚重ねた吸収シート積層体等を用いることができる。

【0028】上記繊維積層体に用いられる上記パルプ繊維としては、通常のパルプ繊維に加えてアルカリ処理により円断面形状に改質されたマーセル化パルプ、架橋剤により改質されたクリンプパルプ等が挙げられる。上記繊維積層体とは、多数の繊維が単に圧縮等により積層されたものを意味し、上記パルプ繊維のみで形成されていてもよく、また、レーヨン繊維、熱可塑性繊維等の他の繊維を含んで形成されていてもよい。この際、該他の繊維の含有量は、5～30重量%とするのが好ましい。

【0029】また、上記吸収シートに用いられる上記パルプ繊維としては、上記繊維積層体に用いられるパルプ繊維と同じものが用いられる。また、上記繊維としては上記パルプ繊維のみを用いてもよいが、上記パルプ繊維に加えてレーヨン繊維、熱可塑性繊維等の他の繊維を混合して用いることができる。この際、該他の繊維の含有量は、5～30重量%とするのが好ましい。そして、上記吸収シートは、上記繊維を湿式抄紙製法あるいはラテックスボンド、サーマルボンドからなる乾式パルプシート製法にて得られるシートであり、その厚みは、0.3～5mmであるのが好ましい。また、上記吸収シート積層体は、上記吸収シートを複数枚、好ましくは2～10枚重ねてなるものである。

【0030】また、上記液吸收体は、上記繊維積層体、上記吸収シート又は上記吸収シート積層体に繊維状又は粉末状の高分子吸収体を含有させたものが特に好ましく用いられる。ここで、上記高分子吸収体が繊維状である場合の平均長軸長は、1～10mmであるのが好ましく、繊維径長は、0.5～3d（デニール）であるのが好ましい。また、粉末状である場合の平均粒径は、100～1,000μmであるのが好ましい。上記高分子吸収体としては、ポリアクリル酸塩系、デンブングラフト重合体系、ポリビニールアルコール系、カルボキシメチ

ルセルロース系等が挙げられる。

【0031】また、上記液吸收体が上記高分子吸收体を含有する態様としては、各繊維と高分子吸收体とが均一に分散されて積層されて繊維積層体を構成した態様、各繊維と高分子吸收体とが均一に分散されて吸收シートを構成した態様、該吸收シートを積層して吸收シート積層体を構成した態様及び高分子吸收体を含有しない各吸收シートの間に高分子吸收体を均一に散布して吸收シート積層吸收体を構成した態様等が挙げられる。

【0032】上記高分子吸收体を用いる場合の上記高分子吸收体の配合量は、上記バルブ繊維100重量部に対して、10～50重量部とするのが好ましい。

【0033】また、上記液吸收体の厚みは、1～10mmであるのが好ましい。

【0034】また、上記液吸收体に積層される上記装着シートとしては、液不透過性のフィルムシート又は該フィルムシートと他のシートとのラミネートシートが挙げられる。また、上記装着シートの坪量は、10～100g/m<sup>2</sup>であるのが好ましく、その厚みは、0.3～3mmであるのが好ましい。上記坪量が、10g/m<sup>2</sup>未満であると、清掃シートをモップ状掃除具に装着するのに十分な強度が得られず、100g/m<sup>2</sup>を超えると、装着シートの柔軟性が劣るとともに不必要的コストがかかってしまう。

【0035】上記フィルムシートとしては、ポリエチレン系シート、ポリプロピレン系シート、ポリエステル系シート等が挙げられる。また、上記ラミネートシートに用いられる上記の他のシートとしては、強度および柔軟性を向上させる点から熱接着性不織布との複合シートが挙げられる。また、上記ラミネートシートにおいては、上記の他のシートは上記フィルムシートの表面又は裏面の一方又は両方にラミネートすることができる。

【0036】本発明の清掃シートは、上述のように、上記表面シートを有しているので、液体洗剤を操作性に優れて拭き取ることができる。また、上記装着シートが、軟質で且つ布様であり、柔軟性が高いため、清掃部への装着性に優れ、しかも、液体を透過しないので、吸収した清掃液でモップ状掃除具の清掃部を汚染することができない。更に、上記液吸收体を有しているので、広い面積でも効率よく清掃することができ、液濡れによる汚れの拭き取り性に優れたものである。また、上記表面シートが上記の特定の形状を有する場合には、液体洗剤を拭き取る時、ならびに保護・つや出し剤を均一に床面に塗布する時の泡立ちを抑制するので清拭面の仕上がり性に優れ、また、摩擦抵抗が低く、操作性に優れている。

【0037】上述した本発明の清掃シートは、上記図1に示した清掃具10の他に、例えば、図9～図13に示す清掃具のように、清掃シートを、その上方（該清掃シートの上面と清掃部との間）に空間を有した状態で装着できるものに装着して使用することが好ましい。このよ

うな形態の清掃具は、拭き掃除の際に清掃シートにかかる押圧力を適度に分散させることができるので、吸収した汚水の逆流を防いだり、清掃部への汚染を抑えたりすることが出来る。

【0038】図9に示した清掃具30は、門型のフレーム本体31aを主体として構成される清掃部31と、該清掃部31に装着した清掃シートを固定する一对の半筒状の固定具32と、該清掃部31に自在継手33を介して連結される把手部34と備えているものである。上記フレーム本体31の2本の脚部31bのそれぞれの端部には、前後方向に延びる装着部31cが設けられており、上記固定具32は、この装着部31cにシートを巻回した状態で当該装着部31cに嵌着できるように形成されている。この清掃具30は、清掃部31に清掃シートを装着した状態においてその上方に空間が設けられているので、拭き掃除の際に清掃シートにかかる押圧力を適度に分散させることができ、吸収した汚水の逆流を防ぐことができるほか、清掃部への汚染を防いだりすることが出来る。

【0039】また、上述した効果を奏するようにした清掃具の他の形態として、例えば、図10に示す形態の清掃具40が挙げられる。この清掃具40は、図1に示した清掃具10における清掃部11に加えて、清掃部41の周縁部に下方に向て延びる周壁部42を設けたものであり、拭き掃除の際に清掃シートにかかる押圧力を適度に分散させることができ、吸収した汚水の逆流を防ぐことができるほか、製造部への汚染を最小限度に抑えたりすることが出来る。

【0040】また、図10に示した清掃具40のような周壁部42に加えて、例えば、図11又は図12に示した清掃具50又は60のように、清掃部51又は61の下面に仕切部53又は63を設けたり、図13に示した清掃具70のように、清掃部71の下面に複数の突起部73を設けることができる。このような仕切部53若しくは63、又は突起部73を設けることは、上記清掃具40における効果に加え、部分的に押圧力をかけ、汚れをとりやすくすることが出来る点で効果的である。

【0041】

【実施例】以下、実施例及び比較例により、本発明を更に具体的に説明するが、本発明はこれらに限定されるものではない。

【0042】【実施例1】表面シート2、液吸收体3及び装着シート4として下記の材料をそれぞれ用いて、下記製造法に従って、図6に示す形態の清掃シート1を得た。

表面シート2：針葉樹クラフトバルブ／短纖維レーヨン／熱可塑性纖維〔帝人（株）製、熱融着性ポリエステル商品名「TJ04CN」、融点110°C〕=40/40/20（重量比）の混合纖維原料を用い、通常の湿式抄紙法にてシートを調製し、さらに、得られたシートを立方体状

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の凹凸パターンを有するエンボスロールにてヒートエンボス加工（加工温度150°C）することにより、正方形形状のドット状の凸部が付与されてなるシートを用いた。

液吸収体3：バルブ80重量部に、高分子吸収体としてのアクリル酸系吸水ポリマー20重量部を均一に分散してなる厚さ2.5mm、坪量50g/m<sup>2</sup>の繊維積層体を用いた。

装着シート4：ポリエチレンフィルムの一面にポリエチレン/ポリエステルの混綿原料によるスパンボンド不織布をラミネートしてなる、厚さ0.3mm、坪量30g/m<sup>2</sup>のラミネートフィルムを用いた。

製造法：上記表面シート2からなる拭取部2'で、上記液吸収体3の表面及び側面を被覆して、該表面シート2（拭取部2'）をその各縁部において装着シート4に接着することにより、製造した。

【0043】そして、上記表面シート2の凸部の高さhは1.0mmであり、各凸部の大きさNは1.0mmであり、各凸部間の間隔Sは、1.0mmであった。また、本形態における上記凸部の清掃時において被清掃面に接触する面積は、表面シート全体の面積に対して25%（以下、単に「接触面積率」という場合には、この割合[%]をいう）であった。

【0044】得られた清掃シートについて下記〔試験例〕に従って試験を行った。その結果を〔表1〕に示す。

【0045】〔試験例〕得られた清掃シートを、図1に示すように、掃除具に装着して、下記の各試験を行った。

【0046】<形態の試験法>

1. 汚れの拭き取り性

3×8cmのビニール製床材（クッションフロア）に濃縮しょう油を0.05g均一に塗布し、50°Cで30分間乾燥してモデル汚れのテストピースを作成した。清掃シートは7×10cmの大きさに裁断し、500gの荷重がかかる条件でテストピース上を40cmのストロークで動く研磨試験機に装着した。テストピースを研磨試験機に設置した後、テストピース上に下記に示す組成の洗浄剤を5mlスプレーした後、往復20回の研磨試験を行った。試験後、残留した汚れの重量を測定してかき取られた汚れの重量を算出し、初期の汚れの重量に対する比率を求め、これを拭き取り率とした。本試験法の結果と実際の汚れとの相関をとった結果、本試験法で70%以上の拭き取り率が得られるものは、実際の汚れの拭き取り性が良好であると判断されたので、70%以上の\*

<洗浄剤組成>

- ・水不溶性ポリマーラテックス（固体分）<sup>1)</sup> 1.1重量%
- ・ポリエトキシ化脂肪族第2級アルコール<sup>2)</sup> 1.0重量%
- 〔商品名「ソフタソール」、日本触媒化学（株）製〕
- ・エチルカルビトール 3.0重量%

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\* 拭き取り率の場合を○とした。

【0047】2. 仕上り性

30×50cmの木製床材（フローリング材）を上記1と同様に研磨試験機に設置した。清掃シートは28×21cmの大きさに裁断した後、26.5×10cmの平面状のモップ状清掃部に巻きつけてテープで固定し、2kgの荷重がかかる条件で、上記木製床材の上を40cmのストロークで動く研磨試験機に装着した。木製床材上に下記に示す組成の洗浄剤を15mlスプレーした後、往復50回の研磨試験を行った。泡立ちにくさを木製床材全面に泡立った時のストローク回数で評価し、ストローク回数が低い程、泡立ちにくく仕上り性良好となる。全面に泡立ちが生じるまでのストローク回数が30回以上のものは実用上仕上り性良好と判断されたので、ストローク回数が30回以上のものは○とし、30回未満のものは×とした。

【0048】3. 拭きやすさ

30×80cmの木製床材（フローリング材）を万能圧縮引張試験機（オリエンティック社製 RTM-2.5）に設置した。清掃シートは仕上り性試験と同じく28×21cmの大きさに裁断した後、26.5×10cmの平面状のモップ状清掃部に巻きつけてテープで固定し、1kgの荷重を清掃部上部に固定した。モップ清掃部には木製床材上を滑らすためにたこ糸を付け、万能圧縮引張機下部に設置した滑車を通して鉛直上方に可動する試験機チャックにたこ糸の端を固定した。木製床材上に下記に示す組成の洗浄剤を15mlスプレーした後、試験機のチャックを500mm/minの速度で鉛直上方に可動させることで、清掃シートを装着したモップ清掃部を可動させ、その際の摩擦抵抗値を測定した。本試験法で得られる摩擦抵抗値と実際の拭きやすさ（操作性）との相関をとった結果、本試験法で1500g以下の摩擦抵抗値が得られるものは、実用上拭きやすさ（操作性）良好と判断されたので、1500g以下の場合を○とし、1500gを超える場合を×とした。

【0049】4. 清掃持続性

図1に示す形態で、50m<sup>2</sup>に敷きつめた木製床を清掃し、50m<sup>2</sup>清掃する間に仕上り性、拭きやすさが損われないかを肉眼および感覚にて評価した。なお、清掃は下記に示す洗浄剤を1m<sup>3</sup>に対し5mlスプレーした後、本発明の清掃シートを装着した図1のモップで拭いた。50m<sup>2</sup>清掃する間に仕上り性、拭きやすさが損われないものは良好であるので○とし、50m<sup>2</sup>清掃する迄に仕上り性、拭きやすさが損われるものは×とした。

【0050】

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- ・カルナウバワックス乳化物（固体分）
- ・ジメチルシロキサン乳化物（固体分）
- ・エタノール
- ・香料
- ・水

1) スチレン／アクリル酸／メタクリル酸／エチルアクリレート共重合物（平均分子量約10万）

2)  $\text{CH}_2 - (\text{CH}_2)_n - \text{CHOH}(\text{CH}_2\text{CH}_2\text{O})_n\text{H}$

【0051】〔実施例2〕表面シート2、液吸収体3及び装着シート4として下記の材料をそれぞれ用いて、下記製造法に従って、図7に示す形態の清掃シート1を得た。尚、図7に示す本実施例の清掃シート1は、表面シート2と液吸収体3と装着シート4とを順次積層してなり、上記表面シート2に波状形状の凸部が形成されてなる清掃シートである。

【0052】表面シート2；セルロース系繊維である針葉樹クラフトバルブ60重量部と、親水性熱可塑性熱収縮繊維である融点130°CのW-ESC〔チッソ（株）製の芯／鞘繊維、芯：ポリプロピレン、鞘：親水性ポリエチレン〕40重量部との繊維混合原料を用いて通常の湿式抄紙法にてシートを調製し、得られたシートを特定の大きさに裁断した後、送風式電気乾燥機中にて165°C、10min熱処理して得た、厚さ1.4mm、坪量40g/m<sup>2</sup>の波状形状の凸部を有するシートを用いた。

液吸収体3；極太バルブ60重量部とバルブ40重量部とからなる厚さ0.35mm、坪量40g/m<sup>2</sup>の吸収シートを4枚積層してなる厚さ1.5mm、坪量160g/m<sup>2</sup>の吸収シート積層体を用いた。

装着シート4；ポリエチレンフィルムの一面にポリエステル／ポリエチレンの混綿原料よりなるサクションヒートボンド不織布をラミネートしてなる、厚さ0.3mm、坪量40g/m<sup>2</sup>のラミネートフィルムを用いた。製造法；上記表面シート2からなる拭取部2'で、吸収シート3aを4枚積層してなる液吸収体3の表面及び側面を被覆し、次いで、該表面シート2（拭取部2'）の各縁部において、装着シート4に接着して、表面シート2（拭取部2'）と液吸収体3と装着シート4とを順次積層することにより形成した。そして、上記波状形状の凸部の高さMは、0.8～1.2mmであり、各凸部の幅Tは、3～10mmである。また、本形態における接触面積率は、13%であった。

【0053】得られた清掃シートについて実施例1と同様の試験を行った。その結果を〔表1〕に示す。

【0054】〔実施例3〕表面シート2、液吸収体3及び装着シート4として下記の材料をそれぞれ用いた以外は、実施例1と同様にして図6に示す形態の清掃シート1を得、得られた清掃シートについて、実施例1と同様の試験を行った。その結果を〔表1〕に示す。

表面シート2；針葉樹クラフトバルブ／熱収縮性繊維

- 1.0重量%
- 0.01重量%
- 3.0重量%
- 0.01重量%
- バランス

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〔チッソ（株）製の芯／鞘繊維、芯：ポリプロピレン、鞘：ポリエチレン、商品名「ESC」〕／熱可塑性繊維〔帝人（株）製、熱融着性ポリエステル、商品名「TJ04CN」〕=50/40/10（重量比）の混合繊維原料より通常の湿式抄紙法にてシートを調製し、丸状の凹凸パターンを有するエンボスロールにてヒートエンボス加工してなる、丸状の凹凸パターンを有するシートを用いた。該表面シートの接触面積率は16%であった。また、上記表面シート2の凸部の高さhは0.2mmであり、各凸部間の間隔Sは、0.9mmであった。

20 液吸収体3；極太バルブ60重量部とバルブ40重量部からなる厚さ0.35mm、坪量40g/m<sup>2</sup>の吸収シートを4枚積層してなる厚さ1.5mm、坪量160g/m<sup>2</sup>の吸収シート積層体を用いた。

装着シート4；ポリエチレンフィルムの一面にポリエステル／ポリエチレンの混綿原料よりなるサクションヒートボンド不織布をラミネートしてなる厚さ0.3mm、坪量40g/m<sup>2</sup>のラミネートフィルムを用いた。

【0055】〔実施例4〕表面シート2として、下記のものを用いた以外は実施例3と同様にして清掃シートを得、得られた清掃シートについて実施例1と同様の試験を行った。その結果を〔表1〕に示す。

表面シート2；針葉樹クラフトバルブ／熱収縮性繊維〔チッソ（株）製の芯／鞘繊維、芯：ポリプロピレン、鞘：ポリエチレン、商品名「ESC」〕／熱可塑性繊維〔帝人（株）製、熱融着性ポリエステル、商品名「TJ04CN」〕=50/40/10（重量比）の混合繊維原料を用いて、通常の湿式抄紙法にてシートを調製し、更に得られたシートに丸状の凹凸パターンを有するエンボスロールにてヒートエンボス加工することにより得られた、丸いドット状の凸部を有するシートを用いた。該表面シートの接触面積率は、30%であった。また、上記表面シート2の凸部の高さhは0.2mmであり、各凸部の大きさNは1.3mmであり、各凸部間の間隔Sは、0.8mmであった。

40 【0056】〔実施例5〕液吸収体3として、厚さ3mm、坪量60g/m<sup>2</sup>の繊維としてバルブを用いた繊維積層体を用いた以外は、実施例1と同様にして清掃シートを得た。また、本形態における接触面積率は、25%である。

50 【0057】〔比較例1〕表面シート2として、下記の

ものを用いた以外は実施例3と同様にして、清掃シートの作成を行い、得られた清掃シートについて実施例1と同様の試験を行った。その結果を〔表1〕に示す。

表面シート2：針葉樹クラフトバルブ／熱収縮性繊維〔チッソ（株）製の芯／鞘繊維、芯：ポリプロピレン、鞘：ポリエチレン、商品名「ESC」〕／熱可塑性繊維〔帝人（株）製、熱融着性ポリエチレン、商品名「TJ04CN」〕=50/40/10（重量比）の混合繊維原料を用いて、通常の湿式抄紙法にてシートを調製し、得られたシートを丸状の凹凸パターンを有するエンボス

ロールにてヒートエンボス加工することにより得られ \*

	実施例				比較例	
	1	2	3	4	1	2
汚れ拭き取り性	○ (85%)	○ (75%)	○ (80%)	○ (85%)	○ (85%)	○ (85%)
仕上がり性	○ (>50回)	○ (>50回)	○ (>50回)	○ (35回)	× (20回)	× (15回)
拭きやすさ	○ (1100g)	○ (850g)	○ (700g)	○ (800g)	× (1600g)	× (1800g)
一枚で拭ける面積	○ (50m <sup>2</sup> )					

#### 【0060】

【発明の効果】本発明の清掃シートは、一般家庭において、床のしみ汚れ等の除去と床の保護・つや出し等のお掃除、お手入れ等の湿式掃除を手軽にできるものである。更に詳述すると、本発明の清掃シートは、上記表面シートを有しているので、清拭面の仕上がり性に優れ、また操作性に優れている。また、上記装着シートが、軟質で且つ布様であり、柔軟性が高いため、清掃部への装着性に優れ、しかも、液体を透過しないので、吸収した清掃液で清掃部を汚染することがない。更に、上記液吸収体を有しているので、広い面積でも効率よく清掃することができ、液濡れによる汚れの拭き取り性に優れたものである。また、上記表面シートが凹凸形状又は波状形状を有する場合には、液体洗剤を拭き取る時の泡立ちを抑制するので清拭面の仕上がり性に優れ、また、摩擦抵抗が低く、操作性に優れている。従って、本発明の清掃シートは、液濡れにより汚染された清拭面の清掃用として特に優れたものである。

#### 【図面の簡単な説明】

【図1】図1は、本発明の清掃シートを掃除具に装着した状態を示す一部破断斜視図である。

【図2】図2は、図1に示す本発明の清掃シートの斜視図である。

【図3】図3（a）は、本発明の清掃シートに用いられる表面シートの1例を示す平面図であり、図3（b）は、図3（a）におけるB-B断面図である。

【図4】図4（a）は、本発明の清掃シートに用いられる表面シートの他の例を示す平面図であり、図4（b）は、図4（a）におけるB-B断面図である。

【図5】図5は、表面シートの清掃時における接触面積の測定方法を示す斜視図である。

\*た、丸いドット状の凸部を有するシートを用いた。該表面シートの接触面積率は、6.5%であった。また、上記表面シート2の凸部の高さhは0.2mmであり、各凸部の大きさNは2.3mmであり、各凸部間の間隔Sは、1.8mmであった。

【0058】〔比較例2〕市販の平織雜巾について、実施例1と同様の試験を行った。その結果を〔表1〕に示す。

#### 【0059】

〔表1〕

20 〔図6〕図6は、実施例1（実施例3、実施例4）の本発明の清掃シートを示す断面図（図2に示す清掃シートのI-I'断面図であって、その一部を省略して示す断面図）である。

〔図7〕図7は、実施例2の本発明の清掃シートを示す断面図（図6相当図）である。

〔図8〕図8は、実施例5の本発明の清掃シートを示す断面図（図6相当図）である。

〔図9〕図9は、本発明の清掃シートを装着することができる掃除具の他の形態の要部を示す斜視図である。

30 〔図10〕図10は、本発明の清掃シートを装着することができる掃除具の他の形態の要部を示す斜視図である。

〔図11〕図11は、本発明の清掃シートを装着することができる掃除具の他の形態の要部を示す斜視図である。

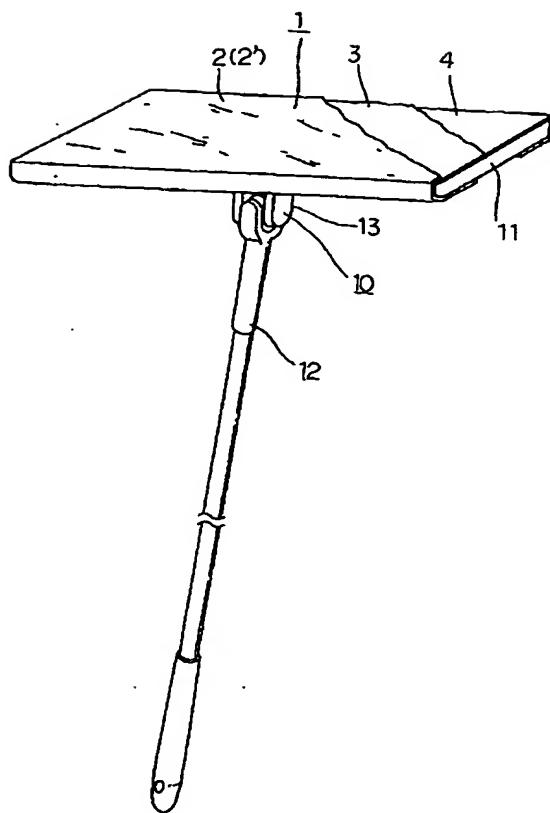
〔図12〕図12は、本発明の清掃シートを装着することができる掃除具の他の形態の要部を示す斜視図である。

40 〔図13〕図13は、本発明の清掃シートを装着することができる掃除具の他の形態の要部を示す斜視図である。

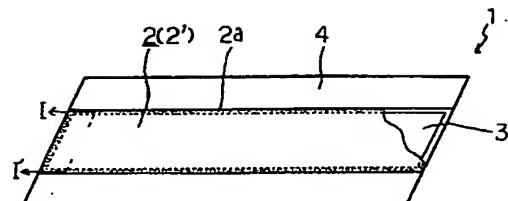
#### 【符号の説明】

- 1 清掃シート
- 2 表面シート
- 3 液吸収体
- 4 装着シート
- 10 掃除具
- 11 清掃部
- 1.2 把手

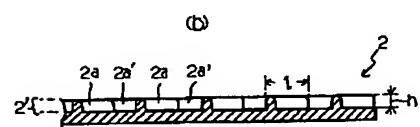
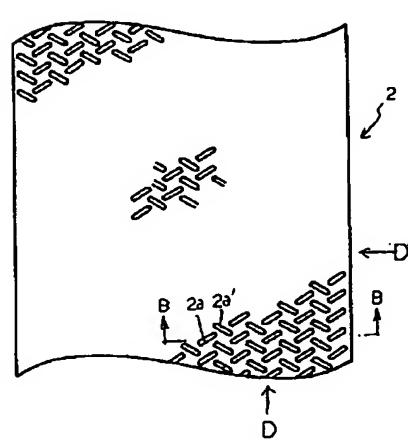
【図1】



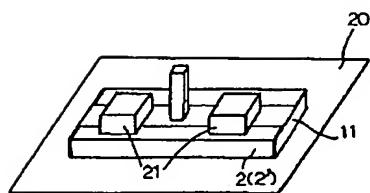
【図2】



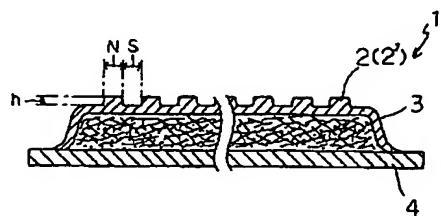
【図3】



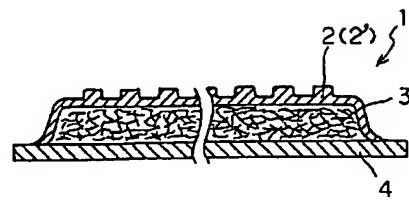
【図5】



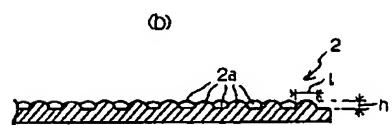
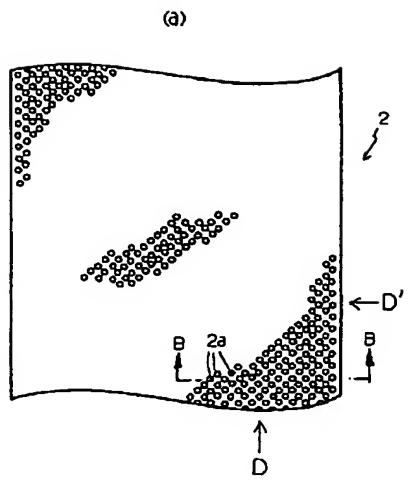
【図6】



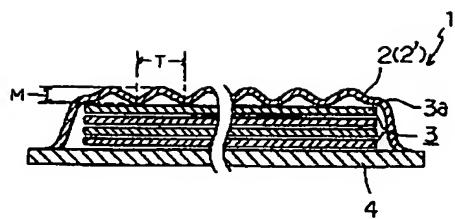
【図8】



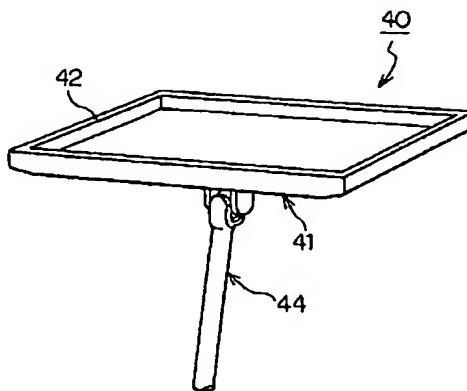
【図4】



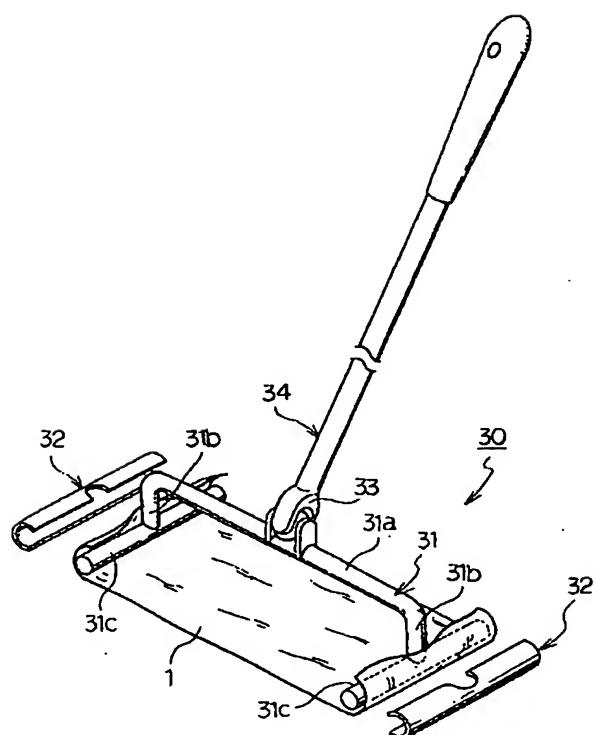
【図7】



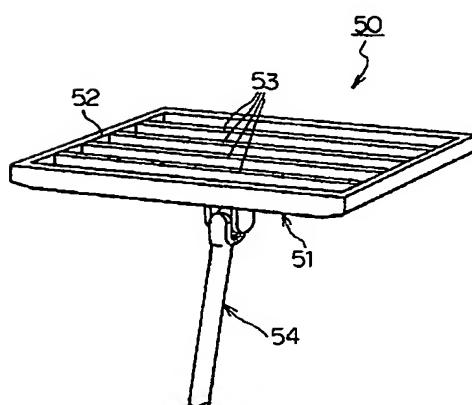
【図10】



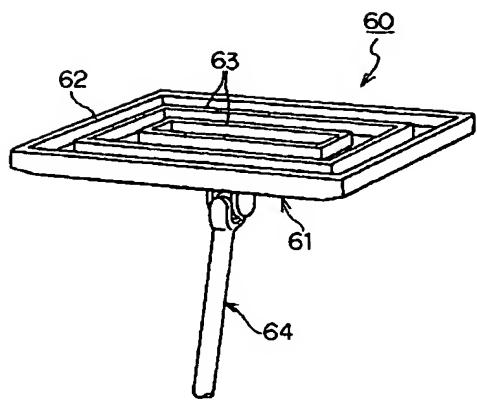
【図9】



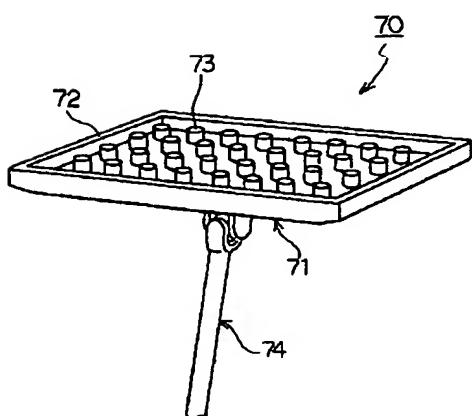
【図11】



【図12】



【図13】



## フロントページの続き

(51) Int.CI.<sup>6</sup>  
B 32 B 27/12

識別記号 庁内整理番号

F I  
B 32 B 27/12

技術表示箇所

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# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-131288

(43)Date of publication of application : 20.05.1997

(51)Int.CI.

A47L 13/16  
B32B 3/30  
B32B 5/02  
B32B 27/00  
B32B 27/12

(21)Application number : 08-066802

(71)Applicant : KAO CORP

(22)Date of filing : 22.03.1996

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(30)Priority

Priority number : 07 82965  
07231425

Priority date : 07.04.1995  
08.09.1995

Priority country : JP

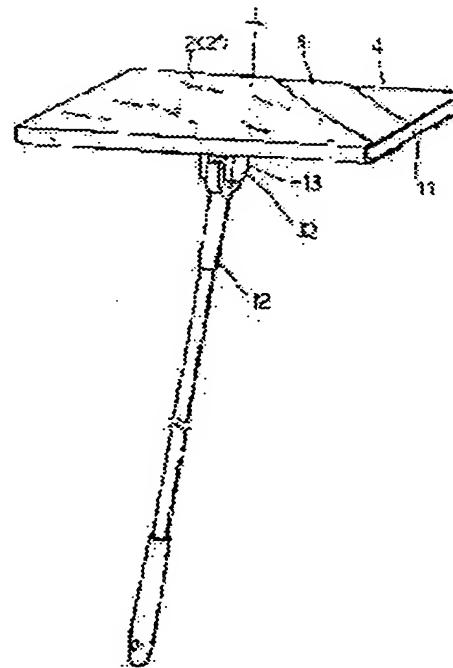
JP

## (54) CLEANING SHEET

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a disposable cleaning sheet used by being mounted to a mop-like cleaning tool capable of easily performing moist type cleaning such as cleaning and maintenance, etc. such as the removal of the stain and dust, etc. of a floor and the protection and polishing, etc., of the floor in a general household.

**SOLUTION:** The cleaning tool 10 is provided with a cleaning part 11 and a bar-like handle 12 connected to the cleaning part 11. Then, this cleaning sheet 1 to be mounted to the cleaning part 11 is provided with a wiping part 2' composed of a liquid-transmissive surface sheet 2 and a liquid absorbent 3 for absorbing liquid wiped by the wiping part 2'. Also, the surface sheet 2 is provided with many projection parts and the area of the projection parts in contact with a surface to be cleaned is turned to be 5-60% to the entire area of the surface sheet 2 at the time of cleaning.



## LEGAL STATUS

[Date of request for examination]

23.07.1997

[Date of sending the examiner's decision of  
rejection]

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] It is the cleaning sheet in the cleaning implement possessing the handle of the shape of a rod connected with the cleaning section and this cleaning section with which this cleaning section is equipped. The above-mentioned cleaning sheet The wiper which consists of a surface sheet of liquid permeability, and the liquid absorber which absorbs the liquid wiped off by this wiper are provided. The above-mentioned surface sheet The cleaning sheet with which area of these heights that have much heights and contact a cleaned field at the time of cleaning is characterized by being 5 – 60% to the area of the whole surface sheet.

[Claim 2] Furthermore, it is the cleaning sheet according to claim 1 which possesses a wearing sheet and is characterized by arranging the above-mentioned liquid absorber between the above-mentioned wiper and this wearing sheet.

[Claim 3] For the above-mentioned surface sheet, the basis weight which contains thermoplastic fiber by 5 – 95% of the weight of the blending ratio of coal is 10–100g/m<sup>2</sup>. Cleaning sheet according to claim 1 characterized by having the heights of the shape of the shape of a rib whose height maintained also at the time of humidity it is a sheet and is 0.01–12mm, and a dot, or the heights of the wavelike configuration whose height maintained at the time of humidity is 0.2–10mm.

[Claim 4] The cleaning sheet according to claim 4 with which the above-mentioned thermoplastic fiber is characterized by being thermoplastic heat shrink fiber, the thermoplastic fiber by which hydrophilization was carried out, or thermoplastic heat shrink fiber by which hydrophilization was carried out.

[Claim 5] The cleaning sheet according to claim 1 characterized by for the above-mentioned surface sheet consisting of 95 – 5 % of the weight [ of thermoplastic fiber by which hydrophilization was carried out to 5 – 95 % of the weight of hydrophilic cellulosic fibers ] fiber mixture, and having the heights of the shape of the shape of a rib, and a dot.

[Claim 6] The cleaning sheet according to claim 1 characterized by for the above-mentioned surface sheet consisting of 90 – 10 % of the weight [ of thermoplastic heat shrink fiber by which hydrophilization was carried out to 10 – 90 % of the weight of hydrophilic cellulosic fibers ] fiber mixture, and having the heights of a wavelike configuration.

[Claim 7] the film sheet of liquid impermeability [ sheet / above-mentioned / wearing ], or the lamination sheet of this film sheet and other sheets — it is — the basis weight — 10–100g/m<sup>2</sup> it is — cleaning sheet of claim 1–7 characterized by things given in any 1 term.

[Claim 8] The cleaning sheet of claim 1–8 characterized by consisting of an absorption sheet layered product which comes to carry out two or more sheet laminating of the absorption sheet or this absorption sheet with which the above-mentioned liquid absorber consists of a fiber layered product which made pulp fiber the subject, and the fiber aggregate which made pulp fiber the subject given in any 1 term.

[Claim 9] That the above-mentioned liquid absorber is fibrous or the cleaning sheet of claim 1–9 given in any 1 term characterized by containing a powder-like high-polymer absorbent.

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

[Field of the Invention] This invention relates to the cleaning sheet for wet cleaning used for home use and business use on the occasion of cleaning of floors, such as removal of the stain dirt of a floor etc., and protection, glazing of a floor, and care and cleaning about the replacement-type cleaning sheet equipped with and used for a mop-like cleaning implement.

**[0002]**

[Description of the Prior Art] Conventionally, cleaning to the stain dirt of a floor etc. was performed by bending the waist using the wrung wetting dustcloth, even if it was a large floor. Moreover, the wax agent was included in the dry dustcloth, the dry towel, etc., the waist was bent like cleaning to the stain dirt of the above-mentioned floor, and protection and glazing of a floor were also performed.

[0003] Generally, in the field of dry type cleaning which removes soil BOKORI, cotton BOKORI, etc. of a floor, it is proposed in order that the tufted mop which processed oils for fiber, or a replacement type sheet type mop may make cleaning of a large floor easy, and home use and business use are actually used. On the other hand, the tufted mop is proposed also in the field of cleaning to the stain dirt of the above floors etc., and cleaning of floors, such as protection, glazing, etc. of a floor, and wet cleaning called care and cleaning. After this tufted mop dips a tufted part in water, it is extracted with a roll and cleaning of a floor is presented with it.

[0004] However, although often used in business-use locations, such as a building and works, superfluous water will be used for this tufted mop to the floor of that preparation of a bucket, a diaphragm roll, etc. is troublesome, and a wood system, problems, like this superfluous water damages flooring have too much [ it ], and it is not used at ordinary homes. Moreover, the exclusive mop with the plane cleaning section which equips with and uses a dustcloth, a towel, etc. is proposed by home use. However, when the dustcloth etc. was left after applying that it is [ that it is easy to foam in case the operability at the time of frictional resistance becoming large and wiping when equipping with a dustcloth a towel, etc. and carrying out wet cleaning wipes and extends not being good and a wax agent to the floor ] inferior to result nature, and a wax agent, there were problems, such as stopping being able to carry out a reuse etc.

[0005] Therefore, the purpose of this invention is at ordinary homes to offer the disposable cleaning sheet which can make easy wet cleaning of cleaning of removal of the stain dirt of a floor etc., protection, glazing of a floor, etc., etc., care and cleaning, etc. and which is equipped with and used for a mop-like cleaning implement.

**[0006]**

[Means for Solving the Problem] That the above-mentioned problem should be solved, this invention persons did the knowledge of the ability of the cleaning sheet possessing a surface sheet, a liquid absorber, and a liquid impermeable sheet to attain the above-mentioned purpose, as a result of inquiring wholeheartedly.

[0007] This invention was made based on the above-mentioned knowledge, and can be set to the cleaning implement possessing the handle of the shape of a rod connected with the cleaning section and this cleaning section. It is the cleaning sheet with which this cleaning section is

equipped. The above-mentioned cleaning sheet The wiper which consists of a surface sheet of liquid permeability, and the liquid absorber which absorbs the liquid wiped off by this wiper are provided. The above-mentioned surface sheet It has much heights and the area of these heights that contact a cleaned field at the time of cleaning offers the cleaning sheet characterized by being 5 – 60% to the area of the whole surface sheet.

[0008]

[Embodiment of the Invention] Although the example of a trial explains concretely hereafter while explaining the cleaning sheet of this invention to a detail further with reference to an accompanying drawing, this invention is not limited to these. It is the perspective view of the cleaning sheet of this invention which is a fracture perspective view a part and shows drawing 2 to drawing 1 which shows the condition that drawing 1 equipped the cleaning implement with the cleaning sheet of this invention. Drawing 3 (a) is the top view showing one example of the surface sheet used for the cleaning sheet of this invention, and drawing 3 (b) is the B-B sectional view of the surface sheet shown in drawing 3 (a). Moreover, drawing 4 (a) is the top view showing other examples of the surface sheet used for the cleaning sheet of this invention, and drawing 4 (b) is the B-B sectional view of the surface sheet shown in drawing 4 (a).

Moreover, drawing 5 is the perspective view showing the measuring method of the touch area at the time of cleaning of a surface sheet. Moreover, drawing 6 is the sectional view (sectional view in which being the I-I' sectional view of the cleaning sheet shown in drawing 2 , and omitting and showing the part) showing the cleaning sheet of this invention of an example 1 (an example 3, example 4), drawing 7 is the sectional view ( drawing 6 equivalent Fig.) showing the cleaning sheet of this invention of an example 2, and drawing 8 is the sectional view ( drawing 6 equivalent Fig.) showing the cleaning sheet of this invention of an example 5.

[0009] As shown in drawing 1 , since the inferior surface of tongue of the cleaning implement 10 possessing the handle 12 of the shape of a rod connected with the top face of the plane cleaning section 11 and this cleaning section 11 is equipped and the direct spray of a spray-type cleaning agent, and protection and a lustering agent is carried out to a floor, or after the cleaning sheet 1 of this invention carries out the spray of a cleaning agent, and protection and a lustering agent to a cleaning sheet, it is used in the form where a cleaned field is wiped. If the above-mentioned cleaning implement 10 is explained further, the above-mentioned handle 12 is connected by the connection section 13 of the abbreviation center section of the top face of the above-mentioned cleaning section 11 free [ rotation ]. Moreover, in case it equips with a sheet, a sheet wearing means to insert in a sheet is formed in the right-and-left both-sides section of the above-mentioned cleaning section 11 (not shown). And as the inferior-surface-of-tongue front face and the above-mentioned wearing sheet 4 of the above-mentioned cleaning section 11 are made to contact, the above-mentioned cleaning implement 10 is equipped with the above-mentioned cleaning sheet 1. Since it is constituted in this way, the above-mentioned cleaning implement 10 can clean the cleaning side of a configuration efficiently variously, maintaining the attachment condition of a sheet to stability.

[0010] \*\*(ing) — this invention — cleaning — a sheet — one — liquid — permeability — a front face — a sheet — two — from — becoming — a wiper — two — ' — this — a wiper — two — ' — having wiped off — liquid — absorbing — liquid — an absorber — three — providing — becoming . Furthermore, if it explains in full detail, the above-mentioned cleaning sheet 1 possesses further the wearing sheet 4 contacted by the above-mentioned cleaning section, and the above-mentioned liquid absorber 3 is arranged between above-mentioned wiper 2' and this wearing sheet 4. The above-mentioned wearing sheet 4 is formed in the shape of [ broad ] a rectangle, the above-mentioned liquid absorber 3 is laid in the crosswise abbreviation center section of this wearing sheet 4, and as it covers this liquid absorber 3, it is arranged on this wearing sheet 4, and the above-mentioned surface sheet 2 heat seals the side edge section 2a, and is being fixed. Moreover, the width of face of this surface sheet 2 is made as [ carry out / with the width of face of the cleaning section 11 / abbreviation coincidence ].

[0011] And the above-mentioned surface sheet 2 has much heights ( drawing 3 , 4 reference), and the area of these heights that contact a cleaned field at the time of cleaning is 10 – 30% preferably 5 to 60% to the area of the surface sheet 2 whole. It becomes that the above-

mentioned area is less than 5% \*\*\*\*-like, and is finished, and if a sex worsens and exceeds 60%, the weight when a bubble becoming easy to form and wiping a floor will become heavy.

[0012] Here, the area of the heights which describe above "contact" is a rate to the area of the whole sheet of the area of the heights which contact a cleaned field at the time of cleaning, and it asks with the following measuring method.

[0013] Measuring method:

1) It is a spray paste (the Sumitomo 3M, Inc. make, trade name "55") about 0.0006g/cm to homogeneity in the front face of the surface this sheet 2 as shown in drawing 5, after equipping the cleaning section 11 with the surface sheet 2 2 A spray is carried out or it is water to the front face of this surface sheet 2 About 0.016 g/cm<sup>2</sup> A spray is carried out.

2) Sprinkle so that it may become homogeneity on the even plate 20 about seven sorts (Kanto loam, a fine grain, IWAMOTOMINERAL CO.) of dusts and aerosols for industrial testing.

3) The cleaning section 11 equipped with the sheet 2 of the above 1 is placed on the even plate 20, carry two 500g dead weights 21, apply a load for 5 minutes, and obtain the sample for measurement.

4) the area of the heights which carry out image analysis of the obtained sample, measure the area of the part which became dirty from seven sorts of dusts and aerosols for industrial testing in the field which touched the plate 20, compute the rate of the area of the part which became dirty from the dust in the area of the whole field which touched this plate 20, and contact this — comparatively — having carried out .

[0014] Next, with reference to drawing 3 and drawing 4, the above-mentioned surface sheet 2 is explained further in full detail. As for the above-mentioned surface sheet 2 of the gestalt shown in drawing 3 (a) and (b), heights 2a of many rib configurations and 2a' are prepared in the front face. this — heights — two — a — two — a — ' — the — a longitudinal direction — the sense — respectively — differing — heights — two — a — heights — two — a — ' — alternation — allotting — preparing — having — \*\*\*\*. And when it sees in the direction of arrow-head D of drawing 3 (a), these heights 2a and 2a' So that these heights 2a and 2a' may exist all over this field (it becomes a closed system by these heights 2a and 2a' when a sheet 2 is seen in the direction of arrow-head D like), when these heights 2a and 2a' is \*\*\*\*(ed) in field 2' in which heights are prepared, as shown in drawing 3 (b) These heights 2a and 2a' is prepared. Thus, by considering as a closed system by above-mentioned heights 2a and 2a', heights can be made to be able to contact a cleaned field uniformly at the time of cleaning, and cleaning effectiveness can be raised. In addition, when a cleaning implement is equipped with the above-mentioned arrow-head D direction, it is a direction which meets crosswise [ of a cleaning implement ]. Moreover, also in the above-mentioned arrow-head D' direction, it is desirable that these heights 2a and 2a' is prepared so that it may become a closed system by these heights 2a and 2a'.

[0015] Moreover, as for the above-mentioned surface sheet 2 of the gestalt shown in drawing 4 (a) and (b), heights 2a of the shape of much dot is prepared in the front face. And as shown in drawing 3 (b), when this heights 2a is seen in the direction of arrow-head D of drawing 3 (a), and this heights 2a is \*\*\*\*(ed) in field 2' in which heights are prepared, this heights 2a is prepared so that this heights 2a may exist all over this field 2' (it becomes a closed system by this heights 2a when a sheet 2 is seen in the direction of arrow-head D like). Thus, by considering as a closed system by the above-mentioned heights 2a, these heights can be made to be able to contact a cleaned field uniformly at the time of cleaning, and cleaning effectiveness can be raised. In addition, when a cleaning implement is equipped with the above-mentioned arrow-head D direction, it is a direction which meets crosswise [ of a cleaning implement ]. Moreover, also in the above-mentioned arrow-head D' direction, it is desirable that this heights 2a is prepared so that it may become a closed system by this heights 2a.

[0016] in addition, in this invention, the configuration of the above-mentioned heights etc. is restricted to the configuration of the shape of the gestalt shown in above-mentioned drawing 3 and drawing 4, the shape of i.e., a rib, and a dot — not having — various configurations, the shape of for example, a crest, — it can consider as configurations, such as wavelike or a line. moreover, the consistency per unit area of the sheet of the above-mentioned heights -- 1 piece/cm<sup>2</sup> it is above -- desirable — further -- desirable -- 5-40 piece/cm<sup>2</sup> it is . 10mm or

less is desirable still more desirable, and die length or a diameter 1 (refer to drawing 3 and drawing 4 ) is 0.3mm – 10mm. Moreover, 0.01mm – 12mm is desirable still more desirable, and height h is 0.05mm – 8mm.

[0017] As a formation ingredient of the above-mentioned surface sheet 2, the ingredient which forms the fiber aggregate of the shape of a sheet, such as synthetic fibers, such as regenerated fibers, such as natural fibers, such as pulp and a cotton, rayon, and cuprammonium rayon, a polyester system, a polyamide system, a polyolefine system, acrylic, and the Vynylon system, and a mixed fiber raw material of those, is mentioned. Furthermore, the fiber mixture which it comes to mix with the compounding ratio which mentions later the hydrophilic fiber and the thermoplastic fiber which are mentioned later as the above-mentioned molding material can be used especially preferably.

[0018] moreover — from the fiber mixture with which the above-mentioned surface sheet 2 contains thermoplastic fiber still more preferably five to 95% of the weight preferably by 10 – 75% of the weight of the blending ratio of coal — becoming — a basis weight — desirable — 10 – 100g/m<sup>2</sup> — further — desirable — 20 – 75 g/m<sup>2</sup> it is — a thing is desirable. And when the heights which the above-mentioned surface sheet 2 has are the heights of the shape of the shape of a rib, and a dot in this case, the height maintained at the time of the humidity of these heights is 1–5mm most preferably 0.05–8mm still more preferably 0.01–12mm. Moreover, when the above-mentioned heights are the heights of a wavelike configuration, the height maintained also at the time of the humidity of these heights is desirable, and it is still more preferably desirable that it is 0.8–5mm most preferably 0.5–7mm 0.2–10mm.

[0019] The configuration maintenance at the time of the humidity of the above-mentioned heights of the surface sheet 2 becomes difficult for it to be less than 5 % of the weight, the blending ratio of coal of the above-mentioned thermoplastic fiber in the above-mentioned fiber mixture is finished, and a sex and operability become a defect. If it exceeds 95 % of the weight, liquid permeability ability will be inferior, the absorptivity of sewage will worsen, and detergency will become a defect. Moreover, the above-mentioned basis weight is 10 g/m<sup>2</sup>. The configuration maintenance at the time of the humidity of the above-mentioned heights becomes it difficult that it is the following as well as the above, and the reinforcement which can be further equal to friction at the time of cleaning is no longer obtained. 100g/m<sup>2</sup> If it exceeds, while the shift of liquid to the liquid absorber 3 will worsen, the cost beyond the need starts as a disposable sheet. If the height of the heights of the shape of the above shape of a rib and a dot is less than 0.01mm or the height of the heights of the above-mentioned wavelike configuration is less than 0.2mm The frictional resistance of a cleaning sheet may become large and workmanship nature may become poor that it is easy to foam in case operability serves as a defect or protection and a lustering agent are applied and extended. Moreover, if the height of the heights of the shape of the above shape of a rib and a dot exceeds 12mm or the height of the heights of the above-mentioned wavelike configuration exceeds 10mm, since liquid permeability ability will be inferior, the absorptivity of sewage will worsen and detergency will become poor, it is desirable to consider as above-mentioned within the limits.

[0020] The location which is [ “it is maintained also at the time of humidity” and ] the cleaning sheet of this invention, and was polluted by \*\*\*\*\* here is cleaned. It means that the configuration (the shape of a dot, the shape of a rib, configuration of wavelike \*\*) of the above-mentioned heights is maintained even if this cleaning sheet is damp. Specifically For example, when this cleaning sheet absorbs the water more than the 100 weight sections to this cleaning sheet 100 weight section, it means that the configuration of the above-mentioned heights is maintained. Moreover, the above “the height of the heights of the shape of the shape of a rib and a dot” (h shown in drawing 3 and drawing 6 ) is the average of the difference of the height of the top-most vertices of heights, and a bottom point, and the above “the height of a wavelike configuration” (M shown in drawing 7 ) is the average of the height of the top-most vertices of wave-like heights, and a bottom point.

[0021] In giving the configuration of the shape of the shape of a rib maintained also at the time of humidity, and a dot especially as the above-mentioned thermoplastic fiber A part of fiber front face fuses by heat treatment of the fiber containing a heat adhesion component with an average

melting point of 160 degrees C or less, i.e., high temperature, (for example, 100 degrees C or more). The fiber which fiber commits to this configuration immobilization is used preferably. For example, a low-melt point point type polyethylene terephthalate fiber, That whose component of one of the two is fiber above-mentioned low-melt point point type in the sheath-core-like fiber which used fiber low-melt point point type [, such as a polyethylene fiber, ethylene vinyl alcohol fiber, or vinylon, ] as the sheath component, and used high-melting type fiber as the heart component, or side by side is mentioned. On the other hand, when giving the wavelike configuration maintained also at the time of humidity, thermoplastic heat shrink fiber, such as fiber which is contracted and is contracted in a crimp configuration according [ the component for a piece ] to heating, is mentioned for the polyethylene system fiber extended beforehand, polypropylene system fiber, polyethylene terephthalate system fiber and the sheath-core fiber that used these fiber as the heart component, or the fiber of a side-by-side mold. Moreover, the thermoplastic fiber (henceforth "hydrophilic thermoplasticity fiber") or the thermoplastic heat shrink fiber (henceforth "hydrophilic thermoplasticity heat shrink fiber") by which hydrophilization was carried out by which hydrophilization was carried out to the above-mentioned thermoplastics by carrying out that scour a hydrophilization agent etc. and it is crowded etc. as the above-mentioned thermoplastic fiber can be used suitably.

[0022] Moreover, it is used with the above-mentioned thermoplastic fiber, and hydrophilic fiber, such as a polyester system by which synthetic-fiber; hydrophilization processing of the hydrophilic cellulosic fiber; hydrophilic properties, such as pulp of a hydrophilic property, a cotton, and a rayon fiber, was carried out, or a polyolefin fiber, is mentioned as fiber which forms a sheet. As the polyester system by which especially the above-mentioned hydrophilization processing was carried out, or a polyolefin fiber, the thing of a type which scoured hydrophilization material in fiber, for example is used suitably.

[0023] moreover, in using the above-mentioned thermoplastic heat shrink fiber as the above-mentioned thermoplastic fiber especially The blending ratio of coal of the above-mentioned thermoplastic heat shrink fiber in fiber mixture When it is desirable to consider as 10 – 90 % of the weight and it uses the above-mentioned hydrophilic thermoplasticity fiber as the above-mentioned thermoplastic fiber The blending ratio of coal of the above-mentioned hydrophilic thermoplasticity fiber in fiber mixture It is desirable to consider as 5 – 95 % of the weight, and when using the above-mentioned hydrophilic thermoplasticity heat shrink fiber as the above-mentioned thermoplastic fiber, as for the blending ratio of coal of the above-mentioned hydrophilic thermoplasticity heat shrink fiber in fiber mixture, it is desirable to consider as 10 – 90 % of the weight.

[0024] Moreover, 5 – 95 % of the weight of hydrophilic cellulosic fibers and 95 – 5 % of the weight [ of hydrophilic thermoplasticity fiber ] fiber mixture (hereafter, in calling it "the fiber mixture A", it points out this fiber mixture), or 10 – 90 % of the weight of hydrophilic cellulosic fibers and 90 – 10 % of the weight [ of hydrophilic thermoplasticity heat shrink fiber ] fiber mixture (hereafter, in calling it "the fiber mixture B", it points out this fiber mixture) is especially desirable, and the above-mentioned fiber mixture is used. Moreover, as for the appearance thickness (thickness also including the height of heights) of the above-mentioned surface sheet, it is desirable that it is 0.5-15mm.

[0025] And in order to manufacture the above-mentioned surface sheet which has the heights of the shape of the above shape of a rib, and a dot, or the heights of the above-mentioned wavelike configuration from the above-mentioned fiber mixture, it can manufacture by carrying out as following. That is, the surface sheet which has the heights of the shape of the above shape of a rib and a dot can be manufactured by stamping a concavo-convex pattern on a sheet in the condition of having got wet in water using the paper-making wire which carries out paper making of the above-mentioned thermoplastic fiber and the hydrophilic fiber, forms a sheet, and performs embossing or heat embossing to the obtained sheet, or has a concavo-convex pattern to manufacture a sheet by the wet paper-making process etc. Moreover, the surface sheet which has the heights of the above-mentioned wavelike configuration can be manufactured by carrying out [ perform / heat shrink processing ], after unifying heat shrink processing or a heat shrink nature sheet, and a heat shrink nature network and a non-heat shrink nature sheet for

the sheet containing the above-mentioned thermoplastic heat shrink fiber or the above-mentioned hydrophilic thermoplasticity heat shrink fiber.

[0026] When mere thermoplastic fiber or the above-mentioned hydrophilic thermoplasticity fiber is used as the above-mentioned thermoplastic fiber, specifically The above-mentioned surface sheet which has the heights of the shape of the shape of a rib and a dot by performing the above-mentioned embossing processing at 110-220 degrees C is obtained. Moreover, when the above-mentioned thermoplastic heat shrink fiber or the above-mentioned hydrophilic thermoplasticity heat shrink fiber is used as the above-mentioned thermoplastic fiber, the above-mentioned surface sheet which has the heights of a wavelike configuration is obtained by performing 130-220 degrees C and the 3 - 120-second above-mentioned heat-treatment. Therefore, as for the surface sheet using the above-mentioned fiber mixture A, it is desirable that the heights of the shape of the shape of a rib and a dot are formed of embossing processing, and, as for the surface sheet using the above-mentioned fiber mixture B, it is desirable that the heights of a wavelike configuration are formed of heating heat shrink processing.

[0027] The absorption sheet layered product which piled up the fiber layered product which made pulp fiber the subject, the absorption sheet which consists of fiber which made pulp fiber the subject, or these two or more absorption sheets as the above-mentioned liquid absorber by which a laminating is carried out to the above-mentioned surface sheet can be used.

[0028] The marcerization pulp in which reforming was carried out to the ellipse cross-section configuration by alkali treatment as the above-mentioned pulp fiber used for the above-mentioned fiber layered product in addition to usual pulp fiber, the crimp pulp reforming was carried out [ pulp etc. ] by the cross linking agent are mentioned. The above-mentioned fiber layered product means that to which the laminating of much fiber was only carried out by compression etc., and it may be formed only for the above-mentioned pulp fiber, and may be formed including other fiber, such as a rayon fiber and thermoplastic fiber. Under the present circumstances, as for the content of this other fiber, it is desirable to consider as 5 - 30 % of the weight.

[0029] Moreover, the thing same as the above-mentioned pulp fiber used for the above-mentioned absorption sheet as the pulp fiber used for the above-mentioned fiber layered product is used. Moreover, although only the above-mentioned pulp fiber may be used as the above-mentioned fiber, in addition to the above-mentioned pulp fiber, other fiber, such as a rayon fiber and thermoplastic fiber, can also be mixed and used. Under the present circumstances, as for the content of this other fiber, it is desirable to consider as 5 - 30 % of the weight. And the above-mentioned absorption sheet is a sheet obtained in the above-mentioned fiber in the dry type pulp sheet process which consists of a wet paper-making process or latex bond, and thermal bond, and, as for the thickness, it is desirable that it is 0.3-5mm. Moreover, two or more 2-10 above-mentioned absorption sheet layered products become in piles preferably about the above-mentioned absorption sheet.

[0030] Moreover, the thing which made the powder-like high-polymer absorbent contain is especially desirable fibrous, and the above-mentioned liquid absorber is used for the above-mentioned fiber layered product, the above-mentioned absorption sheet, or the above-mentioned absorption sheet layered product. As for average major-axis length when the above-mentioned high-polymer absorbent is fibrous, it is desirable that it is 1-10mm here, and, as for the diameter length of fiber, it is desirable that they are 0.5-3d (denier). Moreover, as for the mean particle diameter in the case of being powdered, it is desirable that it is 100-1,000 micrometers. As the above-mentioned high-polymer absorbent, a polyacrylate system, a starch graft polymer system, a poly vinyl alcohol system, a carboxymethyl-cellulose system, etc. are mentioned.

[0031] moreover, as a mode in which the above-mentioned liquid absorber contains the above-mentioned high-polymer absorbent The mode which the laminating of each fiber and the high-polymer absorbent was distributed and carried out to homogeneity, and constituted the fiber layered product, The mode from which homogeneity distributed and each fiber and a high-polymer absorbent constituted the absorption sheet, The mode which sprinkled the high-polymer

absorbent to homogeneity and constituted the absorption sheet lamination absorber between each absorption sheet which does not contain the mode and high-polymer absorbent which carried out the laminating of this absorption sheet, and constituted the absorption sheet layered product is mentioned.

[0032] As for the loadings of the above-mentioned high-polymer absorbent in the case of using the above-mentioned high-polymer absorbent, it is desirable to consider as 10 – 50 weight section to the above-mentioned pulp fiber 100 weight section.

[0033] Moreover, as for the thickness of the above-mentioned liquid absorber, it is desirable that it is 1-10mm.

[0034] Moreover, as the above-mentioned wearing sheet by which a laminating is carried out to the above-mentioned liquid absorber, the film sheet of liquid impermeability or the lamination sheet of this film sheet and other sheets is mentioned. moreover, the basis weight of the above-mentioned wearing sheet — 10-100g/m<sup>2</sup> it is — a thing is desirable and, as for the thickness, it is desirable that it is 0.3-3mm. The above-mentioned basis weight is 10g/m<sup>2</sup>. Sufficient reinforcement to equip a mop-like cleaning implement with a cleaning sheet as it is the following is not obtained, but it is 100 g/m<sup>2</sup>. If it exceeds, while the flexibility of a wearing sheet is inferior, unnecessary cost will start.

[0035] As the above-mentioned film sheet, a polyethylene system sheet, a polypropylene system sheet, a polyester system sheet, etc. are mentioned. Moreover, as other above-mentioned sheets used for the above-mentioned lamination sheet, a compound sheet with a heat adhesive property nonwoven fabric is mentioned from the point which raises reinforcement and flexibility. Moreover, in the above-mentioned lamination sheet, other above-mentioned sheets are laminable at both the front face of the above-mentioned film sheet, or both [ one side or ].

[0036] As mentioned above, since the cleaning sheet of this invention has the above-mentioned surface sheet, it excels in operability and it can wipe off liquid detergent. Moreover, the above-mentioned wearing sheet is elasticity, and is the cloth, and does not pollute the cleaning section of a mop-like cleaning implement with the cleaning liquid absorbed since flexibility was high, it excelled in the wearing nature to the cleaning section and a liquid moreover was not penetrated. Furthermore, since it has the above-mentioned liquid absorber, it can clean efficiently and excels also in a large area at the wiping nature of the dirt by \*\*\*\*\*. Moreover, in having the specific configuration of the above [ the above-mentioned surface sheet ], when wiping off liquid detergent, since foaming when applying protection and a lustering agent to homogeneity in a floor line is controlled, it excels in the result nature of a toilet side, and frictional resistance is low and it excels in operability.

[0037] As for the cleaning sheet of this invention mentioned above, it is desirable to use it like the cleaning implement shown in drawing 9 – drawing 13 other than the cleaning implement 10 shown in above-mentioned drawing 1 , equipping what can equip the upper part (between the top face of this cleaning sheet and the cleaning sections) with a cleaning sheet in the condition with space. Since such a cleaning implement of a gestalt can distribute moderately the thrust applied to a cleaning sheet in the case of wiping, it can prevent the back flow of the absorbed sanitary sewage, or can suppress contamination to the cleaning section.

[0038] It has the cleaning implement 30 shown in drawing 9 with the bundle hand part 34 connected with the half-tubed fastener 32 of the pair which fixes the cleaning sheet which equipped with gate type frame body 31a the cleaning section 31 constituted as a subject, and this cleaning section 31 through a universal joint 33 at this cleaning section 31. Applied part 31c prolonged in a cross direction is prepared in each two edges of leg 31b of the above-mentioned frame body 31, and the above-mentioned fastener 32 is formed so that it can attach in the applied part 31c concerned, where a sheet is wound around this applied part 31c. Since space is established in that upper part in the condition of having equipped the cleaning section 31 with the cleaning sheet, this cleaning implement 30 can distribute moderately the thrust applied to a cleaning sheet in the case of wiping, the back flow of the absorbed sanitary sewage can be prevented, and also the contamination to the cleaning section can be prevented or it can be carried out.

[0039] Moreover, the cleaning implement 40 of the gestalt shown in drawing 10 is mentioned as

other gestalten of the cleaning implement which did so the effectiveness mentioned above. In addition to the cleaning section 11 in the cleaning implement 10 shown in drawing 1, this cleaning implement 40 forms the peripheral wall section 42 prolonged caudad towards the periphery section of the cleaning section 41, the thrust applied to a cleaning sheet in the case of wiping can be distributed moderately, and it can prevent the back flow of the absorbed sanitary sewage, and also it can suppress contamination to the manufacture department to the minimum. [0040] Moreover, in addition to the peripheral wall section 42 like the cleaning implement 40 shown in drawing 10, like the cleaning implement 50 shown in drawing 11 or drawing 12, or 60, the batch section 53 or 63 can be prepared in the cleaning section 51 or the inferior surface of tongue of 61, or two or more heights 73 can be formed in the inferior surface of tongue of the cleaning section 71 like the cleaning implement 70 shown in drawing 13. It is effective to form such the batch section 53, 63, or a height 73 at the point which dirt can be made easy in addition to the effectiveness in the above-mentioned cleaning implement 40 to put thrust partially and to take.

[0041]

[Example] Hereafter, although an example and the example of a comparison explain this invention still more concretely, this invention is not limited to these.

[0042] [Example 1] According to the following manufacturing method, the cleaning sheet 1 of the gestalt shown in drawing 6 was obtained as the surface sheet 2, the liquid absorber 3, and a wearing sheet 4, using the following ingredient respectively.

Surface sheet 2; Needle-leaf tree kraft pulp / staple fiber rayon / thermoplastic fiber [Teijin, Ltd. make, Thermal melting arrival nature polyester trade name "TJ04CN", the mixed fiber raw material of melting point 110 degree-C]=40/40/20 (weight ratio) is used. The sheet with which it comes to give the heights of the shape of a square-like dot was used by preparing a sheet by the usual wet paper-making method, and carrying out heat embossing (working temperature of 150 degrees C) of the obtained sheet further with the embossing roll which has the concavo-convex pattern of cube-like \*\*.

Liquid absorber 3; the thickness of 2.5mm, the basis weight of 50g/m<sup>2</sup> which comes to distribute the acrylic-acid system water absorption polymer 20 weight section as a high-polymer absorbent to homogeneity at the pulp 80 weight section The fiber layered product was used.

Wearing sheet 4; 0.3mm in thickness and basis-weight 30 g/m<sup>2</sup> which come to laminate the span bond nonwoven fabric which becomes the whole surface of a polyethylene film from the cotton-mixing raw material of polyethylene/polyester The laminate film was used.

Manufacturing method; it manufactured by covering the front face and side face of the above-mentioned liquid absorber 3 with wiper 2' which consists of the above-mentioned surface sheet 2, and pasting up this surface sheet 2 (wiper 2') on the wearing sheet 4 at each of that edge by it.

[0043] And height h of the heights of the above-mentioned surface sheet 2 was 1.0mm, magnitude N of each heights was 1.0mm, and the spacing S between each heights was 1.0mm. Moreover, the area which contacts a cleaned field at the time of cleaning of the above-mentioned heights in this gestalt was 25% (hereafter, in only calling it the "contact surface moment", it says this rate [%]) to the area of the whole surface sheet.

[0044] According to example of following [trial], it examined about the obtained cleaning sheet. The result is shown in [Table 1].

[0045] [Example of a trial] As shown in drawing 1, the cleaning implement was equipped with the obtained cleaning sheet, and each following trial was performed.

[0046] Concentration soy sauce was applied to the flooring made from vinyl of 3x8cm of wiping nature of <method of examining gestalt> 1. dirt (cushion floor) at 0.05g homogeneity, it dried for 30.minutes at 50 degrees C, and the test piece of model dirt was created. The cleaning sheet was cut out in magnitude of 7x10cm, and the polish testing machine which runs by the conditions which require a 500g load by 40cm stroke on a test piece was equipped with it. After carrying out 5ml spray of the cleaning agent of the presentation shown below on a test piece after installing a test piece in a polish testing machine, the polish trial of 20 round trips was performed. The weight of the dirt which measures the weight of the dirt which remained after a trial and was

written was computed, it asked for the ratio to the weight of early dirt, this was wiped off, and it considered as the rate. Since that from which 70% or more of rate of wiping is obtained by the exam method as a result of taking correlation with the result of an exam method and actual dirt was judged that the wiping nature of actual dirt is good, it made O the case of 70% or more of rate of wiping.

[0047] 2. Wooden flooring (flooring material) of 30x50cm of workmanship nature was installed in the polish testing machine like the above 1. After cutting out a cleaning sheet in magnitude of 28x21cm, it twisted around the 26.5x10cm plane mop-like cleaning section, and fixed on the tape, and the polish testing machine which runs by 40cm stroke on the above-mentioned wooden flooring was equipped with it on the conditions which require a 2kg load. After carrying out 15ml spray of the cleaning agent of the presentation shown below on wooden flooring, the polish trial of 50 round trips was performed. The count of a stroke when foaming all over wooden flooring estimates the difficulty of foaming, and it becomes good [ workmanship nature ] that it is hard to foam, so that the count of a stroke is low. Since the count of a stroke until foaming arises on the whole surface was judged that workmanship nature is [ 30 times or more of things ] good practically, 30 times or more of things considered as O, and the count of a stroke made x less than 30 times of things.

[0048] 3. 30x80cm wooden flooring (flooring material) was installed in the omnipotent compression tension tester (cage en tick company make RTM-25) in the ease of wiping. After cutting out a cleaning sheet in magnitude of 28x21cm as well as the workmanship sex test, it twisted around the 26.5x10cm plane mop cleaning section, and fixed on the tape, and it fixed the 1kg load to the cleaning section upper part. \*\*\*\* boiled since it let a wooden flooring top slide in the mop cleaning section was attached, and the edge of \*\*\*\*\* was fixed to the testing-machine chuck which carries out movable to the vertical upper part through the block installed in the omnipotent compression \*\*\*\* machine lower part. After carrying out 15ml spray of the cleaning agent of the presentation shown below on wooden flooring, by making the vertical upper part carry out movable [ of the chuck of a testing machine ] at the rate of 500 mm/min, movable [ of the mop cleaning section equipped with a cleaning sheet ] was carried out, and the frictional resistance value in that case was measured. Since that from which the frictional resistance value of 1500g or less is acquired by the exam method as a result of taking correlation with (operability) in the frictional resistance value acquired by the exam method and the actual ease of wiping was practically judged to be good (operability) in the ease of wiping, it made the case of 1500g or less O, and made x the case where it exceeded 1500g.

[0049] 4. At the gestalt shown in cleaning durability drawing 1, it is 2 50m. The wooden floor with which it covered is cleaned and it is 2 50m. While cleaning, it was finished and a sex and the ease of wiping evaluated by the naked eye and feeling whether there would be any disadvantage crack. In addition, cleaning is the cleaning agent shown below 1m 2 It received, and it mopped [ of drawing 1 equipped with the cleaning sheet of this invention ], after carrying out 5ml spray. 50m<sup>2</sup> Since what is finished and does not have a sex and the ease of wiping a disadvantage crack while cleaning is good, it considers as O, and it is 2 50m. The thing which will be finished by the time it cleans and by which a sex and the ease of wiping are spoiled was taken as x.

[0050]

<Cleaning agent presentation> - water-insoluble nature polymeric latex 1 (solid content) 11 % of the weight - Pori ethoxylation aliphatic series secondary alcohol 2 1.0 % of the weight [Product made from trade name "SOFUTA Norian" NIPPON SHOKUBAI Chemistry]

- Ethyl carbitol 3.0 % of the weight - carnauba wax emulsification object (solid content) 1.0 % of the weight - dimethylsiloxane emulsification object (solid content) 0.01 % of the weight - ethanol 3.0 % of the weight - perfume 0.01 % of the weight - water Balance 1 styrene / acrylic acid / methacrylic acid / ethyl acrylate copolymerization object (average molecular weight 100,000 [ about ])

2) CH<sub>3</sub> 13 (CH<sub>2</sub>) CHO(CH<sub>2</sub>CH<sub>2</sub>O)3H[0051] [Example 2] According to the following manufacturing method, the cleaning sheet 1 of the gestalt shown in drawing 7 was obtained as the surface sheet 2, the liquid absorber 3, and a wearing sheet 4, using the following ingredient respectively. In addition, the cleaning sheet 1 of this example shown in drawing 7 is a cleaning

sheet with which it comes to carry out the laminating of the surface sheet 2, the liquid absorber 3, and the wearing sheet 4 one by one, and comes to form the heights of a wavelike configuration in the above-mentioned surface sheet 2.

[0052] Surface sheet 2; The needle-leaf tree kraft pulp 60 weight section which is a cellulosic fiber, The heart / sheath fiber with a melting point of 130 degrees C which is hydrophilic thermoplasticity heat shrink fiber by W-ESC[Chisso Corp., Heart; A sheet is prepared by the usual wet paper-making method using polypropylene and a fiber mixing raw material with the sheath; hydrophilic-property polyethylene]40 weight section. The thickness of 1.4mm, the basis weight of 40g/m<sup>2</sup> which carried out 10min heat treatment 165 degrees C, and was obtained in a ventilation type electric drying in a plane after cutting out the obtained sheet in specific magnitude The sheet which has the heights of a wavelike configuration was used.

Liquid absorber 3; 0.35mm in thickness it is thin from the super-thick pulp 60 weight section and the pulp 40 weight section, 40g of \*\*\*/, and m<sup>2</sup> 1.5mm in thickness and basis-weight 160 g/m<sup>2</sup> which come to carry out the four-sheet laminating of the absorption sheet The absorption sheet layered product was used.

Wearing sheet 4; 0.3mm in thickness and basis-weight 40 g/m<sup>2</sup> which come to laminate the suction heat bond nonwoven fabric which becomes the whole surface of a polyethylene film from the cotton-mixing raw material of polyester/polyethylene The laminate film was used.

Manufacturing method; the front face and side face of the liquid absorber 3 which come to carry out the four-sheet laminating of the absorption sheet 3a were covered with wiper 2' which consists of the above-mentioned surface sheet 2, and subsequently, the wearing sheet 4 was pasted at each edge of this surface sheet 2 (wiper 2'), and it formed by carrying out the laminating of the surface sheet 2 (wiper 2'), the liquid absorber 3, and the wearing sheet 4 one by one. And height M of the heights of the above-mentioned wavelike configuration is 0.8-1.2mm, and the width of face T of each heights is 3-10mm. Moreover, the contact surface moment in this gestalt was 13%.

[0053] The trial same about the obtained cleaning sheet as an example 1 was performed. The result is shown in [Table 1].

[0054] [Example 3] Except having used the following ingredient, respectively as the surface sheet 2, the liquid absorber 3, and a wearing sheet 4, the cleaning sheet 1 of the gestalt shown in drawing 6 like an example 1 was obtained, and the same trial as an example 1 was performed about the obtained cleaning sheet. The result is shown in [Table 1].

Surface sheet 2; Needle-leaf tree kraft pulp / the heart / sheath fiber by heat shrink nature fiber [Chisso Corp., Heart; Polypropylene, sheath; polyethylene, "trade name ESC"] / thermoplastic fiber [Teijin, Ltd. make, A sheet is prepared by the usual wet paper-making method from thermal melting arrival nature polyester and the mixed fiber raw material of trade name "TJ04CN"]=50/40/10 (weight ratio). The sheet which has the concavo-convex pattern of the shape of a round head which comes to carry out heat embossing with the embossing roll which has a concavo-convex round-head-like pattern was used. The contact surface moment of this surface sheet was 16%. Moreover, height h of the heights of the above-mentioned surface sheet 2 was 0.2mm, magnitude N of each heights was 0.8mm, and the spacing S between each heights was 0.9mm.

Liquid absorber 3; the thickness of 0.35mm it is thin from the super-thick pulp 60 weight section and the pulp 40 weight section, the basis weight of 40g/m<sup>2</sup> 1.5mm in thickness and basis-weight 160 g/m<sup>2</sup> which come to carry out the four-sheet laminating of the absorption sheet The absorption sheet layered product was used.

wearing sheet 4; — the whole surface of a polyethylene film — the cotton-mixing raw material of polyester/polyethylene — \*\* — 0.3mm in thickness and basis-weight 40 g/m<sup>2</sup> which come to laminate a suction heat bond nonwoven fabric The laminate film was used.

[0055] [Example 4] Except having used the following as a surface sheet 2, the cleaning sheet was obtained like the example 3 and the trial same about the obtained cleaning sheet as an example 1 was performed. The result is shown in [Table 1].

Surface sheet 2; Needle-leaf tree kraft pulp / the heart / sheath fiber by heat shrink nature fiber [Chisso Corp., Heart; Polypropylene, sheath; polyethylene, "trade name ESC"] /

thermoplastic fiber [Teijin, Ltd. make, Thermal melting arrival nature polyester and the mixed fiber raw material of trade name "TJ04CN"] = 50/40/10 (weight ratio) are used. The sheet was prepared by the usual wet paper-making method, and the sheet which has the heights of the shape of a round dot acquired by carrying out heat embossing to the sheet obtained further with the embossing roll which has a concavo-convex round-head-like pattern was used. The contact surface moment of this surface sheet was 30%. Moreover, height  $h$  of the heights of the above-mentioned surface sheet 2 was 0.2mm, magnitude  $N$  of each heights was 1.3mm, and the spacing  $S$  between each heights was 0.8mm.

[0056] [Example 5] It is the thickness of 3mm, the basis weight of 60g/m<sup>2</sup> as a liquid absorber 3. The cleaning sheet was obtained like the example 1 except having used the fiber layered product using pulp as fiber. Moreover, the contact surface moment in this gestalt is 25%.

[0057] [Example 1 of a comparison] Except having used the following as a surface sheet 2, like the example 3, the cleaning sheet was created and the trial same about the obtained cleaning sheet as an example 1 was performed. The result is shown in [Table 1].

Surface sheet 2; Needle-leaf tree kraft pulp / the heart / sheath fiber by heat shrink nature fiber [Chisso Corp., Heart; Polypropylene, sheath; polyethylene, "trade name ESC"] / thermoplastic fiber [Teijin, Ltd. make, Thermal melting arrival nature polyester and the mixed fiber raw material of trade name "TJ04CN"] = 50/40/10 (weight ratio) are used. The sheet which has the heights of the shape of a round dot acquired by preparing a sheet by the usual wet paper-making method, and carrying out heat embossing of the obtained sheet with the embossing roll which has a concavo-convex round-head-like pattern was used. The contact surface moment of this surface sheet was 65%. Moreover, height  $h$  of the heights of the above-mentioned surface sheet 2 was 0.2mm, magnitude  $N$  of each heights was 2.3mm, and the spacing  $S$  between each heights was 1.8mm.

[0058] [Example 2 of a comparison] The same trial as an example 1 was performed about the commercial plain weave dustcloth. The result is shown in [Table 1].

[0059]

[Table 1]

	実 施 例				比 較 例	
	1	2	3	4	1	2
汚れ拭き取り性	○ (85%)	○ (75%)	○ (80%)	○ (85%)	○ (85%)	○ (85%)
仕上がり	○ (>50回)	○ (>50回)	○ (>50回)	○ (35回)	× (20回)	× (15回)
拭きやすさ	○ (1100g)	○ (850g)	○ (700g)	○ (800g)	× (1600g)	× (1800g)
一枚で拭ける面積	○ (50m <sup>2</sup> )	○ (5m <sup>2</sup> )				

[0060]

[Effect of the Invention] The cleaning sheet of this invention can make easy wet cleaning of cleaning of removal of the stain dirt of a floor etc., protection, glazing of a floor, etc., etc., care and cleaning, etc. at ordinary homes. Furthermore, if it explains in full detail, since it has the above-mentioned surface sheet, the cleaning sheet of this invention is excellent in the result nature of a toilet side, and excellent in operability. Moreover, the above-mentioned wearing sheet is elasticity, and is the cloth, and does not pollute the cleaning section with the cleaning liquid absorbed since flexibility was high, it excelled in the wearing nature to the cleaning section and a liquid moreover was not penetrated. Furthermore, since it has the above-mentioned liquid absorber, it can clean efficiently and excels also in a large area at the wiping nature of the dirt by \*\*\*\*\*. Moreover, when the above-mentioned surface sheet has the shape of toothing, and a wavelike configuration, since foaming when wiping off liquid detergent is controlled, it excels in the result nature of a toilet side, and frictional resistance is low and it excels in operability. Therefore, the cleaning sheet of this invention is excellent especially as an object for cleaning of the cleaning side polluted by \*\*\*\*\*.

**\* NOTICES \***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

[Drawing 1] drawing 1 shows the condition of having equipped the cleaning implement with the cleaning sheet of this invention — it is a fracture perspective view a part.

[Drawing 2] Drawing 2 is the perspective view of the cleaning sheet of this invention shown in drawing 1.

[Drawing 3] Drawing 3 (a) is the top view showing one example of the surface sheet used for the cleaning sheet of this invention, and drawing 3 (b) is a B-B sectional view in drawing 3 (a).

[Drawing 4] Drawing 4 (a) is the top view showing other examples of the surface sheet used for the cleaning sheet of this invention, and drawing 4 (b) is a B-B sectional view in drawing 4 (a).

[Drawing 5] Drawing 5 is the perspective view showing the measuring method of the touch area at the time of cleaning of a surface sheet.

[Drawing 6] Drawing 6 is the sectional view (sectional view in which being the I-I' sectional view of the cleaning sheet shown in drawing 2 , and omitting and showing the part) showing the cleaning sheet of this invention of an example 1 (an example 3, example 4).

[Drawing 7] Drawing 7 is the sectional view ( drawing 6 equivalent Fig.) showing the cleaning sheet of this invention of an example 2.

[Drawing 8] Drawing 8 is the sectional view ( drawing 6 equivalent Fig.) showing the cleaning sheet of this invention of an example 5.

[Drawing 9] Drawing 9 is the perspective view showing the important section of other gestalten of the cleaning implement which can equip with the cleaning sheet of this invention.

[Drawing 10] Drawing 10 is the perspective view showing the important section of other gestalten of the cleaning implement which can equip with the cleaning sheet of this invention.

[Drawing 11] Drawing 11 is the perspective view showing the important section of other gestalten of the cleaning implement which can equip with the cleaning sheet of this invention.

[Drawing 12] Drawing 12 is the perspective view showing the important section of other gestalten of the cleaning implement which can equip with the cleaning sheet of this invention.

[Drawing 13] Drawing 13 is the perspective view showing the important section of other gestalten of the cleaning implement which can equip with the cleaning sheet of this invention.

**[Description of Notations]**

- 1 Cleaning Sheet
- 2 Surface Sheet
- 3 Liquid Absorber
- 4 Wearing Sheet
- 10 Cleaning Implement
- 11 Cleaning Section
- 12 Handle

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[Translation done.]

## \* NOTICES \*

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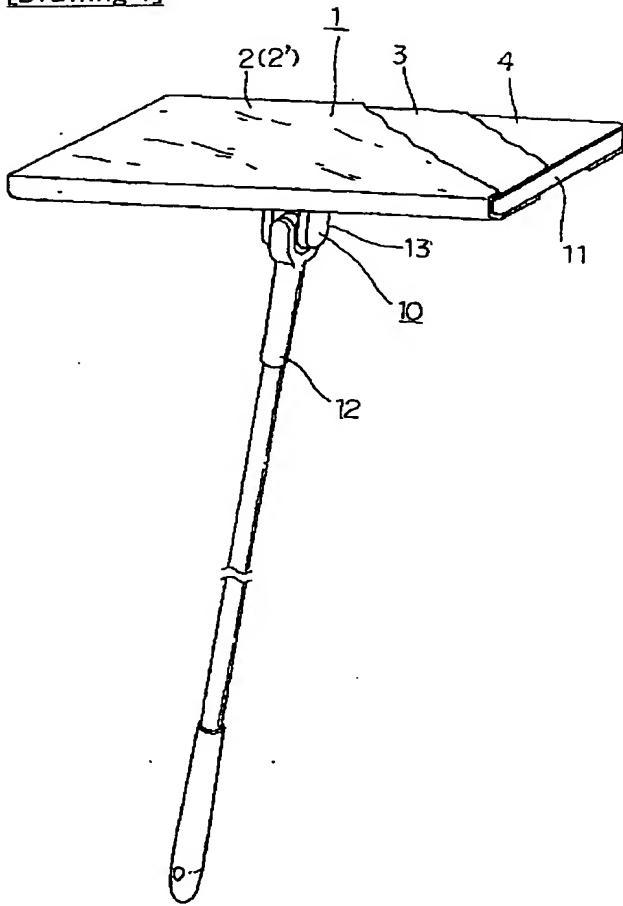
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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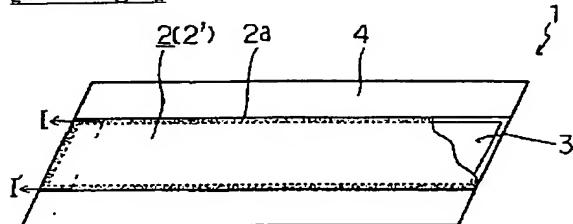
DRAWINGS

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## [Drawing 1]

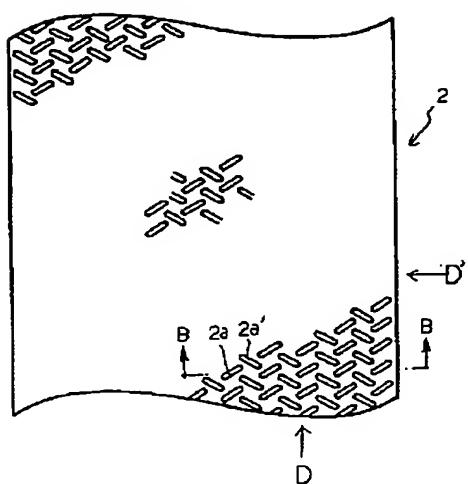


## [Drawing 2]

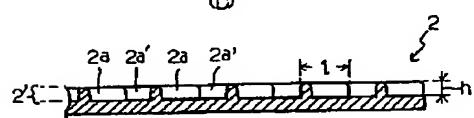


## [Drawing 3]

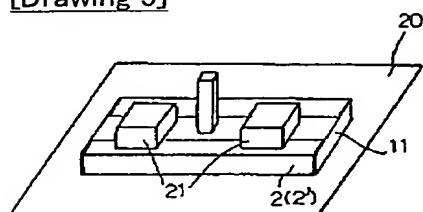
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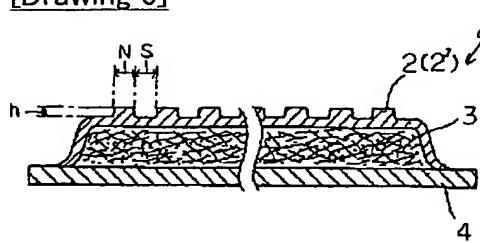
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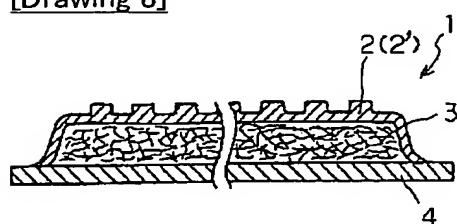
[Drawing 5]



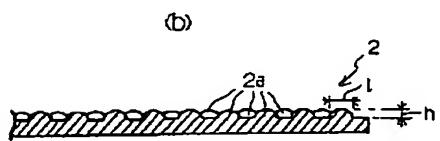
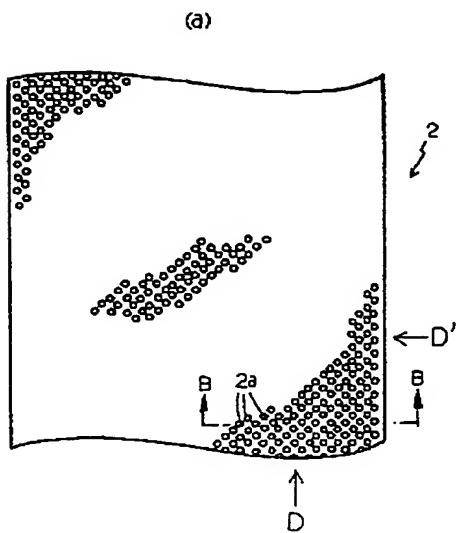
[Drawing 6]



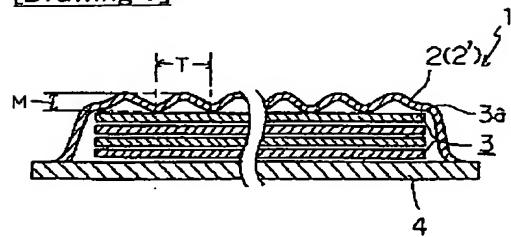
[Drawing 8]



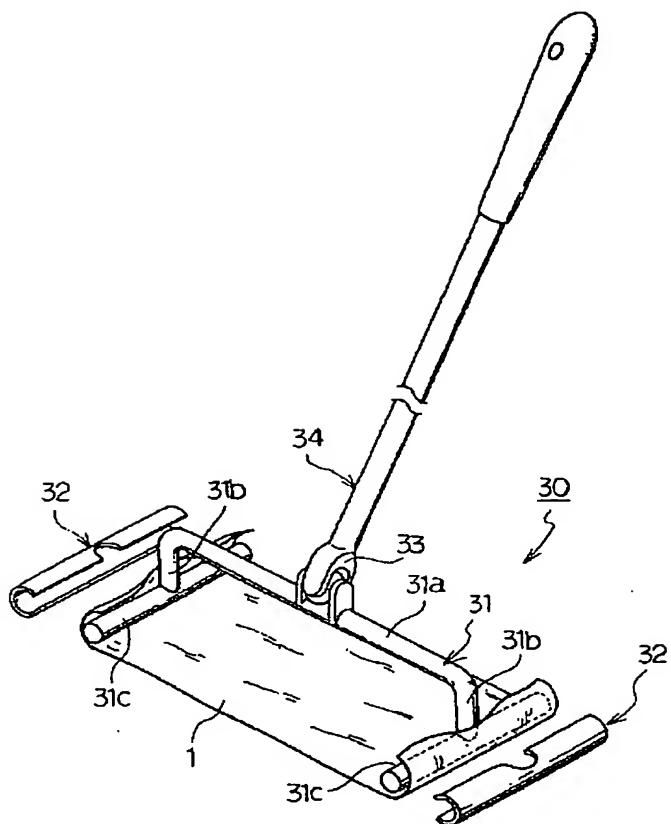
[Drawing 4]



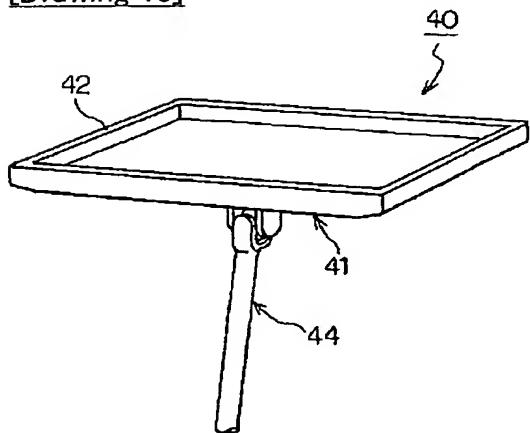
[Drawing 7]



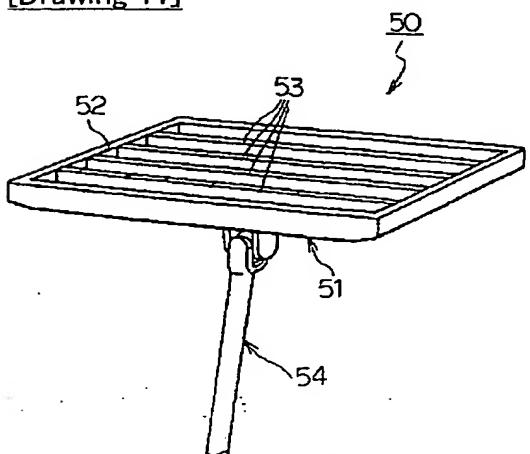
[Drawing 9]



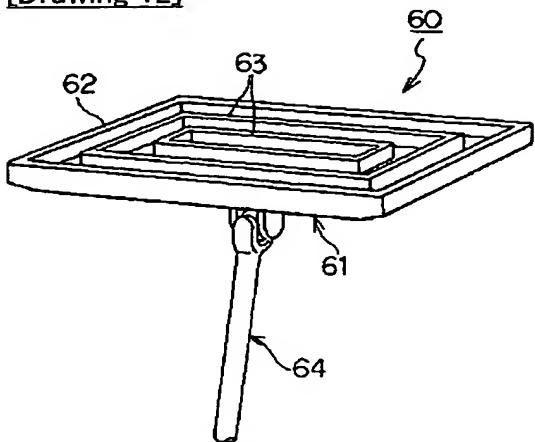
[Drawing 10]



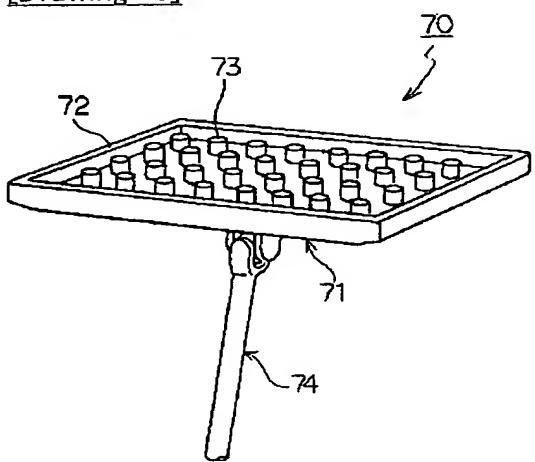
[Drawing 11]



[Drawing 12]



[Drawing 13]



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[Translation done.]